WEEKLY

DEC 3 1917
UNIV OF MICH
LIBRARY

MUNICIPAL JOURNAL

243 WEST 39TH ST. NEW YORK

VOLUME XLIII
No. 22

November 29, 1917

$3.00 a Year
10 Cents a Copy

Now Is The Time To Stop—and Think

Boston Post Road.
Warrenite Road, Fairfield Ave., Fairfield, Conn., laid over old macadam.

What is becoming of the macadam road? The steady wear and tear of the iron tired wheel and the constant suction of the automobile tires are gradually making the macadam roads disappear.

Now is the Time to Surface

these roads with WARRENITE before they are gone so far as to be valueless as foundations, thus saving considerable expense for new foundations which would be necessary if the roads become so worn out that the foundation strength has succumbed.

WARRENITE is a construction especially adapted for surfacing macadam roads.

WARRENITE is **not** a mere liquid coating or a dust layer, but is a surface made of a dense mixture of varying sizes of stone combined with bituminous cement so proportioned as to obtain the best results.

WARRENITE is the solution of the country road problem both as to new roads and for resurfacing macadam roads.

If you wish to save money on your roads insist on WARRENITE, the road surface material that will stay good for years to come and which is the cheapest in the long run.

WARRENITE - - The Best by Every Test

Write today for WARRENITE circulars, specifications, and form of mixture agreement, available to all contractors, and learn more about this modern ideal country road surface.

IT IS TO YOUR ADVANTAGE

Warren Brothers Company

EXECUTIVE OFFICES: BOSTON, MASS.

DISTRICT OFFICES

NEW YORK, N. Y.
PORTLAND, ORE.
ST. LOUIS, MO.
WINNIPEG, MAN.
CHICAGO, ILL.
PHOENIX, ARIZ.
UTICA, N. Y.
VANCOUVER, B. C.
ROCHESTER, N. Y.
NASHVILLE, TENN.
TORONTO, ONT.
LOS ANGELES, CAL.
RICHMOND, VA.
MONTREAL, P. Q.

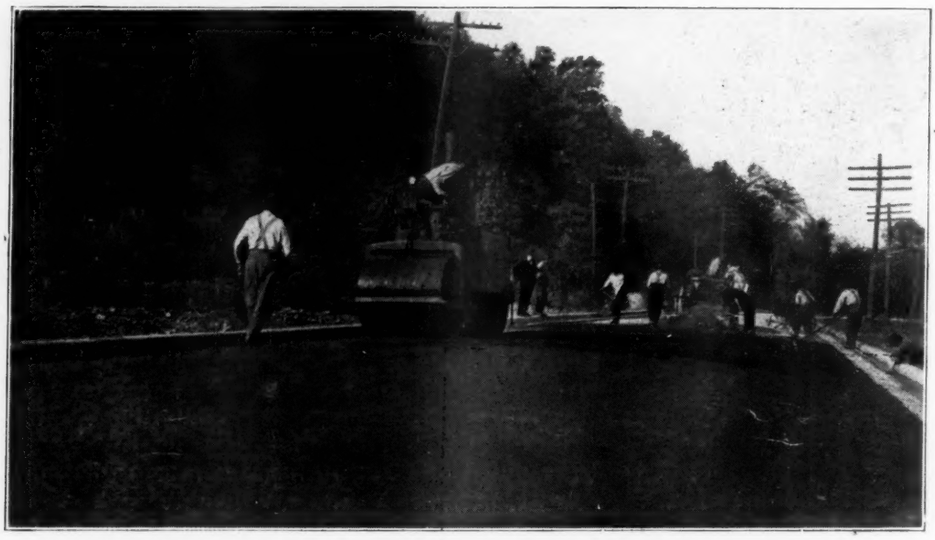
TABLE OF CONTENTS, PAGE 3

INDEX TO ADVERTISEMENTS, PAGE 36

Build Your Road the Standard Way

with

STANOLIND PAVING ASPHALT



ASPHALTIC CONCRETE—BUTTERWORTH AVENUE, GRAND RAPIDS, MICH.
Stanolind Paving Asphalt "B" used

The exact information which you need to construct new roads or protect old ones is contained in our free book, "Stanolind Paving Asphalt."

Stanolind Paving Asphalt is produced from Mid-Continent Crude under a new patented process, and is furnished in all consistencies suitable for

Sheet Asphalt — Asphaltic Concrete
Asphalt Macadam

Also Seal Coats for Water Bonded Roads

Send for free booklet, "Stanolind Paving Asphalt," today. It gives methods, tables and figures on the proper construction of all types of Asphalt Roads. It contains scientific information set forth in a most interesting manner.

STANDARD OIL COMPANY

72 WEST ADAMS STREET (INDIANA) CHICAGO, ILLINOIS

Municipal Journal

Volume XLIII. **NEW YORK, NOVEMBER 29, 1917** **No. 22**

SEWERAGE SYSTEM FOR A SMALL TOWN.

Screen, Septic Tank, Coke Filter, Settling Tank and Chlorine Treatment—Pumping from a Low District—Mixing and Distributing Concrete at Plant—Trench Excavation by Machinery.

Some difficulties were encountered in designing and constructing a sewerage system and disposal plant for a section known as Prospect Beach, near West Haven, Conn. The section to be sewered is a long narrow strip facing on Long Island sound, mostly lying on a steep sidehill, but partly built along the flat land along the shore. This lower part is only slightly above the sea level and is either made ground, marshy land or gravel beach. The beach is wide and much frequented by residents of New Haven, especially during the summer. It was mainly to prevent the pollution of this beach that the construction of the sewerage system was begun.

The design, in general, calls for a collecting system of about 30,000 feet of 8-inch, 10-inch and 15-inch sewers and a small treatment plant. The separate system was chosen because of the great savings in cost; also in this case storm drains can be constructed easily, with a few manholes, in pipe lines to carry storm water directly down the main streets into the sound. Treatment is to be by septic tank and coke filters, the effluent to be discharged into the sound at a point 600 feet from shore and in at least 6 feet of water, after sterilizing with chlorine. The treatment plant is located in a small salt marsh about 75 feet from the waters of the sound.

In designing the sewers it was estimated that six people would finally occupy each 50-foot lot, and the size of sewer required was taken as that necessary to carry 60 gallons per capita from 24 people per 100 feet. Infiltration was estimated at 100 per cent. With the minimum grade that would give a velocity of 2 feet per second and assuming a contributing population of 6,000, a 15-inch sewer running half full was necessary. All smaller sewers were designed on the same basis of 24 people per 100 feet, 60 gallons per capita, and 100 per cent infiltration.

The septic tank and coke filters were selected in preference to an Imhoff tank as a means of treatment, owing, in part, to conditions at the point chosen for the location of the plant. The less depth required for the septic tank was an important consideration, where excavation would be below the level of the sound; also it is possible to operate the septic tank covered, which the engineers assumed to be not the case with the Imhoff tank. As located, the plant is within a short distance of a main street (Ocean avenue), is very close to the bathing beach, and is within sight of many of the cotttages. When construction is completed, the swamp will be filled in, the beach improved and Ocean avenue straightened. With these improvements, it is expected that property values in the neighborhood will increase rather than decline.

DIGESTION TANKS IN FOREGROUND. AT RIGHT, REAR, FILTER AND SETTLING TANK.

Sewage, collected by the laterals, is taken through a 15-inch main to the treatment plant. The sewage passes through a screen chamber 8 ft. long and 3 ft. wide, and a screen with bars placed 3 inches apart, and then enters the digestion tanks. There are two of these. The larger is 16 feet wide and 21 feet 6 inches long; the smaller is the same length, but varies in width from 8 feet to 12 feet 6 inches. After treatment in the digestion tank the sewage passes over a weir at the end and is carried to the coke filters and settling tank. This tank is 20 feet wide, 60 feet long and about 5 feet deep. It is divided by a wall running lengthwise through the center. In each half is a coke filter 4 feet wide, and extending the full 60 feet, the walls of this filter being made up of perforated

CONCRETE MIXER, INDUSTRIAL TRACK AND AGGREGATE PILE.
Foot of tower at right.

brick, thus leaving a narrow settling basin in each half of the tank. The effluent from the digestion tanks passes through the coke filters and the perforated walls and into the settling basins. From the settling basins, the flow is over a weir and through a 15-inch discharge pipe to the chlorine treatment house. After sterilization, the effluent is discharged into the sound, as already described.

A small section of the region sewered is very low and the sewage from it will not flow to the treatment plant by gravity. A small pump house and collecting well will be constructed in this section and the sewage will be pumped through about 1,000 feet of 6-inch cast-iron force main to the treatment plant. The pumps will be electrically driven. Two screens will protect the pumps, both of which will have ⅜-inch bars, on the first one spaced 1 inch apart and on the one nearest the pumps spaced ⅜ inch apart.

The method of construction of the pipe line leading from the chlorine house into the sound has not yet been decided upon. The line is to be built of 15-inch Wyckoff creosoted wood stave pipe and will discharge 600 feet from the shore in 6 feet of water. Owing to the porous sand and mud bottom of the sound, coffer-dam construction is unlikely and the pipe will probably be put together on shore, floated to place and sunk in a dredged channel.

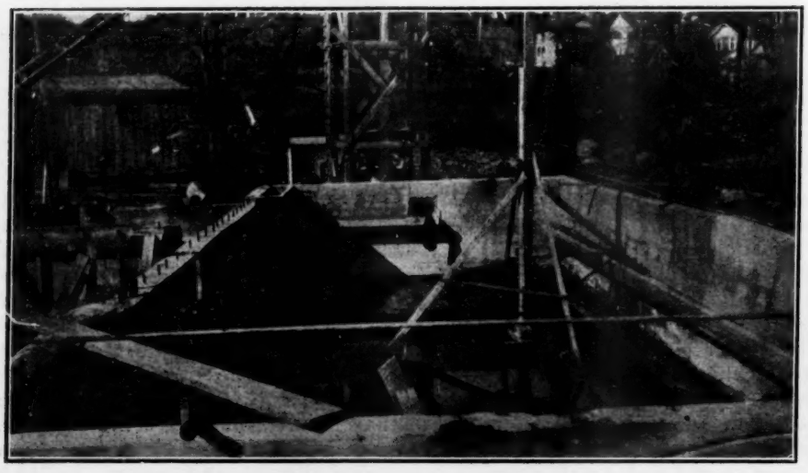
Excavation for the septic tanks, the chlorine house and the pumping station was done entirely by hand. Practically no sheeting was required except in the inlet end of the digestion chambers, where excavation was carried down nearly 15 feet. Here 2-inch planks, hand-driven, were used. Water was quite troublesome. Worthington reciprocating steam pumps were used chiefly for keeping the excavations clear, and were also used, along with hand pumps, for dewatering the trenches.

Concrete was distributed from a 65-foot tower by a chute to a platform, from which it was shoveled into the forms. The layout at the mixer was economical. A platform built above the level of the ground at the mixer, as shown in the illustration, enabled the mixer to be charged easily. Sand and gravel were brought from nearby piles and dumped from the barrows directly into the drum. Cement was stored in a shed about 50 feet from the mixer and transported to it, a dozen bags at a time, by an industrial car. The mix is 1:2:4. A 7-cubic foot gasoline driven mixer is used.

Many different conditions were encountered in trenching and in laying the pipe. Excavation in the whole job averaged about 7 feet in depth and in the deepest part reached 13 feet. On the hillside facing the sound, excavation was fairly easy, very little water was encountered and little sheeting required, planks being placed upright with braces between about every 3 to 5 feet. Along the shore the excavation reached its maximum depth and pumps had to be operated almost continuously. Part of the excavation was in firm gravel, which stood up quite well, part in made ground and part in marsh land. That in the made land was perhaps most troublesome, owing to the presence of frequent large boulders. All banks stood up well, and planks 3 feet apart, braced, furnished all necessary support. In the lower sections water was troublesome but was kept down by steam and hand pumps.

All excavation was done by machinery, except a very small section dug by hand at the beginning of the job. Two machines were employed and these worked very well, considering the varying conditions under which they were employed. No comparison of their work was possible, nor were the daily averages of the same machines comparable, for the same reason. No costs were kept, the machines being rented for this job.

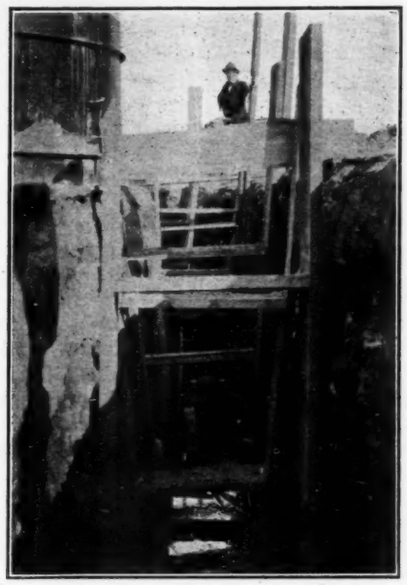
The pipe laying gang followed closely the trenching machines. After laying, the pipe was covered about a foot and the joints left to set. The final backfilling was by hand or by horses and scraper. Manholes were cast integral from concrete, steel forms being used both inside and out.



SETTLING TANK; DIGESTING CHAMBERS AT LEFT.
Coke filters will be constructed in this tank. Concrete mixer and tower in rear.

CONCRETING TOWER AND DISTRIBUTING CHUTE.

Sand and gravel for constructing the treatment plant were secured by screening the deposits along the beach. Edison cement was used and pipe from St. Mary's, Pa. The Acme Engineering Co. of Hartford was the contractor, with M. E. Pierson, vice-president, in charge. Palmer & Lynch of West Haven were engineers in charge of design and construction. L. W. Snyder was inspector for the city of West Haven, under F. L. Coe, city engineer.



TRENCH THIRTEEN FEET DEEP.
Only small amount of sheeting required.

BUILDING ROADS IN THE EVERGLADES

Physical and Zoological Conditions Encountered—Locating Old Section Line Corners—Local Clayey Materials for Surfacing.

By SELDEN L. STEWART.*

Doubtless many readers remember seeing in their old geography text-books pictures of the Florida Everglades, showing giant trees covered with Spanish moss, large ferns, palms and luxuriant vegetation. This may have represented scenes in the vicinity of the 'Glades, but was a very misleading picture of the real Everglades of Florida. The Everglades are really one great big swamp covered with saw-grass. Saw-grass has a giant toothed blade and ranges from 3 ft. to 15 ft. high. Another common plant is the wampee, which has a very hot, pungent root, with a taste similar to that of the Indian turnip or Jack-in-the-pulpit. Other features much in evidence are the alligator ponds, with accompanying 'gator slides and caves, in which ponds are to be found arrow leaf and other aquatic plants. But as far as the eye can reach, and then on and on beyond, it is one great sea of saw-grass.

Under foot there is nothing but muck, which is generally covered with water 2 or 3 ft. deep in the rainy season of the summer months, but in winter is often almost dry. In the winter of 1916-17 the rainfall was so slight that parts of the 'Glades, in which the soil approximates peat, took fire and great areas of this soil were burned off. At night the display of fire was very beautiful and during the day great clouds of whitish smoke rolled up.

*Engineer of Special Road and Bridge District No. 2.

Moccasins, alligators and otters are the most common creeping animals, and gallinules, mud-hens and other "squawks" nest and feed in the big swamp.

A road is being built across the state from east to west, which necessarily crosses the Everglades. In running the line for the division known as Special Road and Bridge District No. 2, the survey was commenced at a point in the Ft. Myers road, 12 miles west of Labelle. The line parallels the Caloosahatchee river for 20 miles, then bears off southeast to a township line, then due east along the south boundary of another township, then northeast across a third township to Lake Okeechobee, and around the south shore to the intersection of the Lee and Palm Beach county lines,. a total distance of about 49 miles.

At the eastern end of this division, for 33 miles, the highway right-of-way is across virgin country, with not a single dwelling in sight. Cattle and hogs range over this region, the cattle being to some extent confined by wire fences. While at work, the engineers frequently flushed wild turkeys and deer; and quail and fox squirrels and smaller game were too common to be interesting. In the preliminary work it was necessary to run over and relocate old section lines surveyed by government surveyors back in 1872, and there was only one corner that could not be found. The old fat "lighter" stakes (stakes cut from heart pine) were still standing just as driven, and in most cases the Roman numerals which designated the four cornering sections could be read plainly. These numerals had been cut in the wood with an old fashioned marker. The one corner that could not be picked up was in a bonnet pond in the middle of a saw-grass pond. The water in the bonnet pond was waist-deep and bonnets (which is the southern name for squawm or spatterdock, a queer near-pondlily) covered all but an open space in the very middle about 20 ft. in diameter. Swimming about on the top of this water were ten or more little alligators from a foot to 18 inches long. The old one was probably near by in a cave. After a search which, on account of the water and the fear of the old 'gator, could not be the most thorough, this corner was allowed to stay lost. In several cases where the corner came in a slough or a pond, the heart pine or "lighter" log from which the stake had been cut was found lying on the ground beside the stake, where it had been dragged from the near-by timber, with the axe marks usually very prominent. When the corner was in timber, most of the witness trees were standing and the hacks were seen easily.

The nineteen miles of this road just before entering the 'Glades proper traverses a region that repeats itself over and over, yet is never quite the same—a ridge of pine timber, then a slough, another ridge of pine timber and another slough, over and over again.

Once in a while a diamond-back rattle snake from about 4 to 7 feet long would be encountered. When this happened, the usual method of procedure was to stick the sharp point of a range pole through it and then cut off its tail close up behind its ears with the axe. These snakes are deadly poisonous, but are sluggish and

STANDARD CONCRETE BRIDGE

EVERGLADES ROAD IN SERVICE.

not much to be feared unless stepped upon. They will run away if given a chance.

When this division and the other divisions at either end of it are complete, there will be a hard surfaced highway across the state of Florida from Punta Rassa on the Gulf of Mexico to Palm Beach on the Atlantic Ocean. This highway will not be uniform in the various divisions, owing to the different methods of construction. The usual method was to make a rough reconnoissance of the section, from this prepare a rough estimate of the cost, and then vote for the bond issue to construct that section. No two divisions appropriated the same amount of money per mile. If the bond issue carried, an engineer was employed to make a preliminary survey and then submit plans for as good a road as could be built across the section with the money voted. The width of the hard or improved surface of the road will vary from 12 to 15 ft., while the total widths of graded roadways vary from 16 to 24 ft.

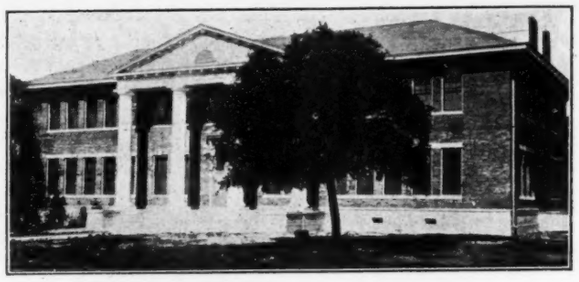
The material for the hard surface is obtained from local borrow pits, the haul usually not exceeding one mile. From these are obtained clay, clay and pebbles, clay and shells, or clay, pebbles and shells. Some crushed rock may be used. The mixture of clay and pebbles or clay and shells makes a very good hard road, the clay serving as a binder and some of it setting up almost like concrete. This hard surface is to be made 6 inches thick. The material is excavated from the borrow pits by a Thew steam shovel and loaded into wagons hauled by four mules (some trucks will soon be placed on the jobs, probably Duplex), spread on the sub-grade which has previously been prepared by machines, rolled, scarified, shaped with a road machine, and finished with the roller.

The cost of grading will probably average 15c. per cubic yard in all divisions and the cost of the surfacing will average about 20c. per square yard.

The section of road shown in the photograph has been laid six months, this period including the rainy season, and has stood fairly heavy automobile and heavy team hauling, but has not had any maintenance work done on it at all. Formerly this road was almost impassible a good part of the year; it crosses three muck ponds and some very heavy sand in the stretch shown in the photograph.

Concrete bridges are being used wherever there are well defined streams. Wood will be used in the broad sloughs. The fill in these sloughs is from one to three feet high and the bridges placed here will be only temporary, as in time canals will no doubt be dug through the sloughs, at which time permanent bridges can be erected.

Carlton and McCormick of Labelle have the contract for the 49 miles of hard road in district No. 2. Trapp and Frazier of Ft. Myers have the contract for the 21 miles of hard road in the Caloosa valley division, which connects Ft. Myers with district No. 2. From Ft. Myers to the Gulf an asphalt road known as the McGregor boulevard is already built. East of division No. 2, Palm Beach county will build a road across the 'Glades. They will dig a canal 35 ft. wide and 10 ft. deep and use the excavated material for the road.



PUBLIC SCHOOL BUILDING AT LABELLE, FLA.

Fine school buildings, such as that shown in the photograph, are being built along this highway and teaching forces of the best are employed for them and the equipment is good. This combination of good schools and good roads will yet make a paradise of this howling wilderness, and chase the 'gators out of their caves.

MUNICIPAL WORK IN SAVANNAH

Methods and Costs of Cleaning the Several Kinds of Pavements—Collecting and Disposing of Refuse—Use and Sale of Materials.

STREET CLEANING.

White labor is employed exclusively in Savannah, Ga., for street cleaning, but to a considerable extent the force is composed of a class which, on account of its physical condition, is unable to do an ordinary day's work; 48 per cent of those employed are over 50 years of age and 9 per cent are over 70.

The organization of the street cleaning department consists of one superintendent at $110 per month, four foremen who average $2.50 per day, and 70 laborers, including cart and wagon drivers, at $1.75 per day.

Sheet asphalt streets are cleaned daily except Sunday with scrapers. The scrapings are placed in the gutters and promptly picked up by carts. With the asphalt block and brick pavements, 40 per cent of the area is cleaned twice a week, 40 per cent three times a week, and 20 per cent once a week. Of the granite block 50 per cent is cleaned twice a week, 20 per cent three times a week and 30 per cent once a week. Cobble pavements are cleaned about once in ten days. The method of cleaning asphalt block, brick, and, to a large extent, granite block, is by horse-drawn sweepers, preceded by sprinklers, all the work being done at night. Hand brooms and scrapers are used in collecting the sweepings in piles in the gutters, these being cleaned up as formed by carts and wagons. The cobble pavements are hand cleaned with brooms.

A large proportion of the sweepings are delivered to a

Street Cleaning Costs in Savannah.

Class of Pavement	Average Width in Feet, Total	Condition of Surface.	Area in Sq. Yds.	Length in Miles	Cost of Cleaning per Year, Including Removal of Debris	Cost per Mile per Year	Cost of Cleaning per 1,000 Sq. Yds. per Year	Cost of Cleaning 1,000 Sq. Yds. per Cleaning
Concrete	30	Good	22,000	1.25	$480.00	$322.00	$22.00	$0.204
Asphalt block	35	Good	329,209	12.89	7,361.00	571.00	22.36	0.205
Vitrified brick	36	60% Good, 40% Rough	393,450	17.00	13,816.00	813.00	35.12	0.322
Granite block	31	Fair	116,962	5.95	4,800.00	807.00	41.04	0.415
Cobble stone	28	Rough	76,478	4.13	4,968.00	1.203.00	64.96	1.249
Sheet asphalt	40	Good	141,319	5.04	12,226.00	2,426.00	86.52	0.277
Totals			1,079,418	46.26	$43,650.00			

local concern, which pays the city the nominal amount of $250 per annum for same. This party picks the coarser rubbish from the sweepings and grinds the refuse, adds a certain percentage of cotton-seed meal and potash, and sells the resulting mixture in Florida as fertilizer for truck farming.

The accompanying tabulation, prepared from accurate data, gives the cost of cleaning the paved streets of the city. This tabulation shows that the cost of street cleaning is directly proportional to the smoothness of the pavement surface. It shows that the costs of cleaning concrete and asphalt block are practically the same, that of brick is considerably higher, and that the cost increases as the worn surface of the pavement increases the difficulty of properly cleaning the same. The cleaning of granite block costs much more than the smoother types. The high cost for sheet asphalt is due to the fact that it is hand cleaned.

REFUSE DISPOSAL.

During last year, in Savannah, Ga., household garbage, rubbish and ashes were collected daily except Sunday, and then one collection was made for the down town section and a part of the residential section. The amount of garbage, rubbish and cinders hauled to the destructor totalled 26,722 tons. In addition, 1,400 tons were hauled to dumps, 100 tons of cinders and ashes used for street filling, 100 tons of paper hauled to a baling establishment and 200 tons of dead animals taken to a rendering plant, a total of 28,522 tons. The cost of collection was $2.07 per ton, including all labor, maintenance of equipment, feeding and renewal of stock, etc.

Of the total refuse collected, approximately 40 to 45 per cent in weight was strictly garbage, excepting during the months of July and August, when the watermelon season was at its height. The average daily amount of watermelon and cantaloupe rinds then was approximately 20 tons, so that during these two months the actual weight of strictly garbage was not less than 55 per cent.

During the year the stable sweepings from the city lots, amounting to 1,200 tons, was sold at the lot for fertilizing purposes for $252. Dead animals, amounting to 332 horses, mules and cows, were delivered to a rendering plant for which the city received $150. There was sold also 100 tons of waste paper, for which the city received $494.

All garbage, rubbish, household wastes and cinders were disposed of by incinerating. (The Savannah plant was described in Municipal Journal, February 11, 1915). As stated above, the amounts burned in July and August were far above the average, due not only to the large amount of watermelon rinds destroyed, but also to the increased amount of cinders added to assist the burning during these two months.

An experiment was made during the watermelon season by adding a small quantity of wood in order to increase, if practicable, the amount of steam for the water works plant, and 100 cords of wood, costing $300, were used for this purpose. This was not really necessary to consume the wet garbage, but merely to increase the generating of steam. This was the only fuel used at the plant during the year.

The total cost of operating the plant was as follows:

Incinerator operation	$17,575.79
Weighing refuse and delivery of same to the hoppers	1,554.70
Maintenance	4,082.26
Total	$23,212.75
Credit for steam furnished the Water Dept.	4,182.00
Total	$19,030.75

making a net cost of operation 72 cents per ton.

The cost of removing clinkers was $1,791.50 and the estimated quantity of clinker removed was 6,000 tons.

A considerable quantity of hard clinker was used for surfacing some of the outlying streets, some sold for filling purposes and the remainder for filling in city's land, so that it may be considered that the cost of removing the clinker is covered by proceeds of sale by enhancing value to low lands owned by the city, and for streets or road improvement.

The above and all other public work, such as paving, sewers, water supply, etc., are in charge of E. R. Conant, chief engineer of the city, from whose annual report the above were taken.

FIREMEN'S PENSIONS AND BENEFITS

Items of Information Concerning These from Several Cities—How Funds Are Raised and Systems of Payment.

Supplementing the tabulated data given in the issues of November 15th and 22nd, we give below a number of items concerning pensions and benefits for firemen that could not well be given in the tables.

PENSIONS AND BENEFITS.

In the cities of Illinois the firemen are protected by the Illinois State Firemen's Association Indemnity Insurance Fund, under which, if hurt while going to or returning from or working at a fire, the association pays $2 per day for the period of disability and pays the amount of one assessment in case of death.

In Davenport, Iowa, the city assesses with the general taxes up to one-half mill for the pension fund and the firemen pay 1 per cent of their salaries to such fund. The city pays wages for 1 year to a fireman who is hurt or sick. The firemen also carry insurance in the Police and Firemen's Insurance Association of Indianapolis at a cost of $1 to $1.50 a month. The Benevolent Firemen's Association allows $200 death benefit and $5 per week sick or accident benefits. Firemen can retire after 22 years of service when they are 50 years of age, a pension being required by the state law.

The state of Kansas collects from fire insurance companies doing business in that state 2 per cent of their premiums in towns maintaining a volunteer fire department, which money is turned over to the relief associations of the volunteer companies to pay sick or accident benefits in case such sickness or accident was caused by attendance at a fire. Eighty per cent of this money may be spent for equipment.

Chief Wm. C. Green, of Concord, N. H., reports that the State Firemen's Association receives $4,000 annually from the state, and in case of accident to firemen assists in paying the benefit. The Concord Firemen's Relief Association, supported by dues and donations, pays $300 in case of death and $1.50 a day for injury, while the state association pays $1,200 and $2 a day.

In Albany, N. Y., the members of the fire department contribute 1 per cent of their salaries to a pension fund; and all fines or penalties imposed, all rewards of money, gifts or endowments made because of extraordinary services rendered, are added to the fund. In case the pension fund should become depleted, the city is to make it up. Each member also pays $1 per month into an insurance fund and receives a life insurance of $500, to be left to whomever he may designate in writing.

Columbus, Ohio, pays firemen full salaries in case of injury received while performing their fire duty, continuing this for a period of six months, after which he is

placed on a pension if not able to return to duty. The benevolent association pays $1 a day.

In Oklahoma the state has created a Firemen's Relief Pension Fund, into which the state pays 1 per cent of all foreign insurance that is written in the state, the same being distributed to the different towns according to the amount of insurance written therein. The fund for each town is in charge of a board consisting of the mayor, city clerk, city treasurer and two elected firemen, which board looks after the needs of the sick and crippled firemen and allows the bills. For this information we are indebted to George Gattis, chief of Chickashaw.

In Nashville, Tenn., the city contributes one-tenth of a mill for each dollar of taxable property to the pension fund and the firemen pay 1 per cent of their salaries.

Pennsylvania maintains a state fund for firemen's relief, which is derived from 1 per cent of the fire insurance premiums paid to foreign insurance companies. Payments are made to the various cities and towns and are kept in a fund by them for this purpose. For instance, Clearfield now has $7,000 in its treasury and in case of injury pays the hospital and doctor's expenses and $7.50 per day. Plymouth has about $6,000 in its treasury and pays $10 per week for five weeks.

In Tacoma, Wash., population 120,000, the pension fund receives one-half mill of the tax levy, which furnishes about $5,000 a year. The pension fund is operated under the state law and is kept up by 1½ per cent of the firemen's salaries. In addition, the firemen maintain a pension fund and relief association which pays benefits in addition to those received from the city pension fund. The city pays the regular salaries for a period of 6 months in case of sickness or injury resulting from performance of their work as firemen. After the expiration of six months, those who have not recovered are placed on pension of half salary, which continues until they are able to return to duty.

MISCELLANEOUS NOTES.

The Tacoma, Wash., fire department began operating under the two-platoon system on Sept. 12, and Chief Carl E. Carlson states that since that time the department has been short of men and has not been able to keep up the building inspection. He hopes, however, to renew this inspection as soon as possible, as they have found that the number of fires has been reduced since systematic inspection began.

Chief Albert Herring, of Murphysboro, Ill., is quite proud of his work in fire prevention. This work was started by him in 1914 and he is very enthusiastic over the results obtained. One of his ideas is to give out blanks to the school children just previous to fire prevention day and ask them to inspect their homes and report on the conditions found therein by filling out the blanks, offering three prizes for the best reports turned in. Through the children the interest is passed on to the parents, with the result that the citizens of Murphysboro take more interest in fire prevention than those of the great majority of cities.

FIRE APPARATUS IN SERVICE

On pages 537 to 540 of this week's issue will be found the first half of a tabulated list of motor fire apparatus in service in about five hundred cities of the United States. This is the fourth of seven tables compiled from information furnished by the fire chiefs during October, the first two of which appeared in the November 8th issue. The others, which will follow in the December issues, will give the average mileage per year run by each kind of apparatus, the miles run per gallon of gasoline, and the amount of auxiliary equipment, such as pulmotors, oxygen helmets, searchlights, hand extinguishers, solid and pneumatic tires, feet of hose, and type of fire alarm system. Data concerning expenditures for fire department purposes will be given later.

MINNESOTA FIRE MARSHAL DEPARTMENT.

Since publication in the Nov. 8th issue of the descriptions of the fire marshals' departments of a number of states, we have received that of the Minnesota department, the delay being due chiefly to the fact that a change has just been made in the status and personnel of the department. This information was furnished by Geo. H. Nettleton, chief assistant fire marshal, who is in charge of the fire marshal's office under the Commissioner of Insurance and Fire Marshal, John B. Sanborn.

In 1905 the state legislature passed an act "to prevent unjust discrimination in the fixing of fire insurance premiums, to provide for the appointment of a fire marshal and defining his duties, and to provide additional revenue for the enforcement of such act." The office of fire marshal was created and given a salary of $2,500 a year, but no other appropriation made. The first fire marshal employed a stenographer out of his own salary, and when that was used up, practically suspended operations until the 1907 legislature met, since which year larger appropriations have been made, raised by a tax paid by the fire insurance companies.

The State Fire Marshal's Department was maintained as an independent branch of the government up to August 1st, 1917, when the governor decided to reduce state expenses by eliminating the office and placing the department under the state insurance commissioner, the work of the fire marshal being performed directly by the assistant state fire marshal. There are now nine employees of the department, including five deputy marshals, two stenographers, a clerk and a secretary. The deputies are kept travelling about the state, prosecuting incendiaries, condemning fire hazards and enforcing the clean-up recommendations of the fire marshal.

Prior to this year, the work of the fire marshal might be said to have been of an educational or advisory character, its powers being questioned, although its orders were generally complied with. It conducted an educational campaign throughout the state, with the co-operation of the newspapers and the general public. Recently its powers have been amplified so that now it may not only recommend removal of dilapidated structures, but also issue orders to owners to remove them and, if such orders are not complied with within a reasonable time, may remove such buildings itself and charge the expense to the owner. Many such condemnations have taken place and structures which have been a menace to surrounding property in St. Paul, Minneapolis and Duluth have been sold at auction by the fire marshal's department with the understanding that they be torn down, the proceeds of the sale minus the expenses of the sale being turned over to the owner.

Surveys of communities are made through local fire departments with the assistance of deputy fire marshals. They have been specially instrumental in bringing to the attention of the local authorities the necessity for removing structures which, though not themselves fire menaces, might hinder the work of fighting a real fire. In all cases the local authorities have been willing to co-operate with the state department. The department advises communities to organize fire prevention work and has prepared model ordinances for the guidance of local law-making bodies which uniformly have been adopted.

Municipal Journal

Published Weekly at
243 West 39th Street
by
Municipal Journal and Engineer, Inc.

S. W HUMK, President
J. T. MORRIS, Treas. and Mgr. A. PRESCOTT FOLWELL, Sec'y.

A. PRESCOTT FOLWELL, Editor
W. A. HARDENBERGH and SIMON BARR, Assistant Editors
CHARLES CARROLL BROWN, Western Editorial Representative

Telephone, 9591 Bryant, New York
Western Office, Monadnock Block, Chicago

Subscription Rates.

United States and possessions, Mexico and Cuba.....$3.00 per year
All other countries..... 4.00 per year
Entered as second-class matter, January 3, 1906, at the Post Office at New York, N. Y., under the Act of Congress of March 3, 1879.

Change of Address.

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributed Articles and Reports.

Contributions suitable for this paper, either in the form of special articles or as letters discussing municipal matters, are invited and paid for.

City officials and civic organizations are particularly requested to send Municipal Journal regularly their annual and special reports.

Information Bureau.

Municipal Journal's Information Bureau, developed by twenty-one years' research and practical experience in its special field, is at the command of our subscribers at all times and without charge.

COAL AND PUBLIC UTILITIES.

During the past month probably no matters of public interest have received more general attention from the public than the shortage of sugar, wheat and coal. The private citizen probably has been most concerned with the food problem, but managers of water works, electric light and power plants have found the shortage of coal a cause of continuous apprehension. The Council of National Defense has done more than many realize to prevent this shortage from producing serious consequences in any section of the country. But for their action such consequences would undoubtedly have occurred in many places.

The Advisory Committee on Gas and Electric Service (a co-operative committee of the Council of National Defense) is endeavoring to facilitate shipments of coal and other necessary materials to public utilities whose uninterrupted functions are vital to the welfare of the communities which they serve. It wishes to assist all such public utilities which find it difficult or impossible to maintain a sufficient supply to keep their plants operating, and requests that the proper officials of any water works or electric lighting plant, whether municipally or privately owned, communicate at once with the secretary of the committee, Geo. W. Elliott, Munsey Bldg., Washington, D. C., should they experience difficulty in obtaining shipments of coal sufficient to meet their immediate needs.

While the committee offers its services to such plants, it also expects from them co-operation to the extent of refraining from hoarding coal, and also by using the greatest care in conserving it in the operation of their plants. Many ways in which such conservation can be effected are suggested by the Committee on Coal Conservation of the Chamber of Commerce of the United States. These include, for certain small plants, the buying of power from special power plants which can utilize coal more effectively in creating power than can ordinarily be done by a small plant; using the kind of coal that is mined nearest at hand, thus reducing the tax on the transportation system of the country; using every effort to increase the skill and proficiency of the men who handle the coal; putting the fuel-using equipment into as perfect condition as possible, such as stopping leaks in a boiler setting, replacing defective grate bars, etc.; installing simple and convenient means by which the fireroom force may see results of their operations, such as scales for weighing fuel and ash, meters for measuring water, etc.; running each boiler at its most effective capacity, which may permit one or more to be dropped from service; preventing the formation of scale in the boiler, by changing the source of water supply or by treating the water if necessary; reducing losses of heat after it is generated by covering boiler surfaces and steam pipes, seeing that joints and valves in steam lines are tight, cutting out useless steam lines, etc.; finally, obtaining the advice of an expert steam engineer as to the carrying out of these recommendations. The above will all tend to reduce the coal bills of the users. Some have failed to adopt these methods because the savings made possible thereby, based on former prices of coal, were less than the cost of the changes in operation. But the higher prices now prevailing have increased the saving possible sufficiently in many cases to show a profit from such increased efficiency. But even where the operator cannot figure an actual saving in operating costs by adopting these methods of saving coal, it is his patriotic duty to adopt them for the general welfare of the country at large. It offers a direction in which he can do his bit and feel assured that all the saving he can thus effect will be of direct benefit to his country.

ROAD CONSTRUCTION MUST CONTINUE.

The consternation caused by the promulgation without warning of the embargo on road materials has been relieved to a considerable extent, so far as apprehensions for next year are concerned, by the appointment by the Council of National Defense of a Highway Transport Committee, the purpose of which is to obtain relief from railroad congestion by the more extensive use of the public highways and the handling of short-distance hauls by motor trucks, and by the announcement that it is expected that the embargo will be removed or considerably moderated as soon as the critical condition of the coal distribution problem has been alleviated. This will not permit the renewal, this fall, in many sections of the north, at least, of such road work as requires the use of imported road materials, but it is expected to permit the delivering of such materials in time for the opening of the construction season next spring.

Last week we referred to the duty of highway authorities to inform themselves concerning all material suitable for street and road work that could be obtained within practicable truck-hauling distance. We also called attention to the fact that this was highly essential even though no embargo on road materials should continue, because of the fact that the railroads were unable to handle the freight now being delivered to them, and the amount was certain to be greater next year with the increased output of all manner of industries connected with the prosecution of the war.

If roads could be classed as non-essentials to the war program, it would be our patriotic duty to relieve the railroads of any burden caused by transportation of highway materials and probably to discontinue road construction almost altogether. But as a matter of fact the highways are almost if not quite as essential as the railroads themselves. Aside from munitions, practically all materials, and especially the foodstuffs, are brought to the railroads over the highways; and if the highways should become impassable, the railroads will render no service so far as hauling such materials is concerned. It has been stated time and again that food will prove even more important a factor in winning this war than ammunition. But practically all of the food is grown miles from the railroads and can reach it only over the highways.

We see therefore that as feeders of the railways, the highways are an absolute essential to the winning of the war. This means the improving and maintaining of a sufficient number and distribution of highways to reach all of the farming districts of the United States and connect them with the shipping centers.

There is another most important consideration, however. It is apparent and admitted that the railways have reached practically their limit of transportation capacity and still have not equalled the task which will be presented by next year's activities. This could be met by the manufacture of more locomotives and freight cars, but with this would come increased difficulties of operation and increased demands upon terminal facilities; while the construction of the added rolling stock would make demands upon the steel and iron supply and manufacturing plants that would be to the detriment of the shipbuilding and munition program. It would also involve in many cases a more rapid renewal of existing rails and the extension of track-mileage, to which the same objection of steel consumption is opposed.

A considerable part of the freight traffic consists of comparatively short hauls, and in spite of the great improvements which have been made in handling this class of freight (by which the facilities of the railroads for such work have this year been increased possibly threefold), the withdrawal of all short-haul freight from the railroads would add greatly to their capacity for long-haul business. This short-haul should, therefore, so far as possible, be taken care of by the only other traffic medium which is apparently available—motor trucks using the highways.

Such use of the highways will require the highest grade of pavement construction. If the best grade of pavement can be constructed with local materials, this, of course, should be done; but if it cannot, then adequate materials should be brought in for the purpose. Where such materials can be obtained within 50 or 100 miles, it is desirable that they be brought by truck rather than by placing the burden upon the railroads. This might add somewhat to the cost of the highway construction, but not so much as some might think, as we shall endeavor to show next week. At any rate, main highways for handling this short-haul freight service and laid out with the purpose not so much of serving as feeders to the railroads as for supplementing the railroads, should be planned at once and carried to completion as soon next year as weather will permit as one of the foremost duties of the nation at this time.

This necessity for the combined action of the road builders and the motor truck manufacturers suggests the desirability of having a representative of the latter upon the Highways Transport Committee. This is being urged by the Ohio Good Roads Federation and others and would seem to be highly desirable.

To sum up: It seems to be manifest that a large part of the burden of winning the war has fallen upon the shoulders of the United States, and that the providing of munitions and food is the most important element of our duty. By no means the least important and necessary part of this is the collecting and forwarding of the food, clothing and munitions, and it is apparent that a vital part in this must be played by the highways of the country. Unless we keep in condition the secondary roads over which the food is concentrated to main shipping stations, the main highways over which freight is carried by automobiles for the relief of the railways, and the streets of the cities over which are hauled the raw materials to the factories, the finished products of munitions and clothing taken therefrom and the freight in transfer from railroad to dock or vice versa—unless these things are all attended to and all the energies of those entrusted with this work are bent to the most effective solution of this problem, we shall fall short of our duty.

DIRT ROADS AND THE WAR.

Thousands of miles of the roads which furnish the only outlets from the farms on which is grown the food for ourselves and our allies still remain as dirt roads. Even if it should be considered justifiable in this emergency to place the most durable surface upon all of these roads, it would be impracticable today or in one year or two or three. Most of them must remain as dirt roads for years to come yet. They must, however, carry to the shipping centers, and without serious interruptions, the increasing quantities of grains and other food products which are so vitally necessary at this critical time.

The problem of maintaining dirt roads has therefore become a more important one than ever, and county and state highway authorities should see to it that every effort is made to put all of these roads into the best possible condition as soon as practicable. There is still time this fall to do considerable grading and shaping of roads so as to permit them to resist more successfully the effects of winter weather, and be in better condition in the spring for immediate use or more rapid improvement. All highway officials are now familiar with methods of treatment that will prevent excessive rutting, such as the use of the drag, scraper and other simple means, and these should be employed now and whenever advantageous throughout the winter in order to prevent the formation of ruts and mud-holes, which make so difficult the putting of the roads into shape when the frost goes.

In a great many localities it is possible to improve dirt surfaces with local materials at comparatively little cost, such as by the construction of sand-clay roads, by gravel surfacing, etc. Advantage may be taken of the comparative idleness of teams and farmers during the winter to haul the sand, gravel or clay necessary for this purpose and distribute it along the sides of the road ready for use as soon as weather conditions permit in the spring. Even the snow plow can be used to advantage in many cases to prevent the concentration of all traffic to a single pair of wheel tracks through the snow, which generally results in a cutting through of the road surface along these two lines, to the detriment of the road.

Much of the above applies to northern climates. In many parts of the Southern States maintenance and construction of roads can be continued throughout the winter. In such localities work should be begun promptly and continued to insure that there shall be no delay at any time in getting to the distribution centers all the marketable foodstuffs grown anywhere in the state.

MOTOR APPARATUS IN SERVICE.

City and State.	Chief's Cars.	Chemical and Hose With Ladders.	Chemical and Hose Without Ladders	H. & L. Trucks.	Triple Combinations.	Hose Wagons.	Tractors.	Chemical Engines.	Gasoline Pumping Engine With Hose.	Gasoline Pumping Engine Without Hose & Chem.	Gasoline Pumping Engine With Chemical.	Gasoline Driven Steam Pumper.	Fuel or Service Wagons.	Repair Wagons.	Squad Wagons.	Water Towers.
Alabama:																
Brewton	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Gadsden	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Huntsville	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Selma	1	1(1)	2	....	1	1	....	....	1	....	1	....	....	....	....	....
Arizona:																
Bisbee	1	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....
Douglas	1	1	....	1	....	....	....	....	1	....	....	....	....	....	....	....
Nogales	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Phoenix	2	3	....	1	....	....	....	....	1	....	....	2	....	....	....	....
Arkansas:																
El Dorado	1	....	1	....	....	(1)	....	....	....	....	....	....	....	....	....	....
Ft. Smith	2	3	....	....	1	....	1	....	1	....	....	....	....	....	....	....
Jonesboro	....	1	....	1	....	1	....	....	....	....	....	....	....	....	....	....
Little Rock	2	2	....	1[2]	2	2	1	....	4	....	....	....	1	....	....	....
Prescott	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Russellville	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
California:																
Alameda	1	....	4	1	....	....	....	....	....	2	....	....	....	....	....	....
Berkeley	2(1)	6	....	1	....	1	1	2	....	1	....	2	1	....	....	....
Bishop	....	1	1	1	....	3	....	....	....	....	....	....	....	....	....	....
Coalinga	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Emeryville	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	....
Hayward	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Long Beach	1	....	....	1	1	1	....	1	2	....	....	1	....	1	....	....
Modesto	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Monrovia	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Oakland	6	4	....	5	3	....	2	2	3	1	3	1	1	....	1	....
Palo Alto	....	1	1	1	....	3	....	1	....	....	....	....	....	....	....	....
Pasadena	2	3	....	1	1	....	....	1	5	....	....	....	1	....	1	....
Petaluma	....	....	1	....	....	....	....	....	1	....	....	....	....	....	....	....
Pomona	....	....	....	1	....	....	....	1	1	....	....	....	....	....	....	....
Redlands	1	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Richmond	2	3	....	....	....	....	....	....	1	....	....	....	....	1	....	....
San Leandro	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
San Rafael	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Santa Ana	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Santa Barbara	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....
Santa Monica	1	2	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Santa Rosa	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Stockton	1	4	....	....	....	....	....	....	4	....	....	....	....	....	....	....
Ventura	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....
Watsonville	1	....	....	1	1	1	....	....	1	....	....	1	....	....	....	....
Whittier	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Colorado:																
Boulder	....	2	....	....	....	....	....	1	....	....	....	....	....	....	....	....
Colorado Springs	2	4	....	2(1)	1	....	1	....	....	....	1	....	....	....	....	....
Fort Collins	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Grand Junction	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Longmont	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Trinidad	1	....	2	2	....	1	....	....	....	....	....	....	....	....	....	....
Salida	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Connecticut:																
Bridgeport	3	2	10	5	2	10	2	2	9	....	9	2	3	1	....	....
Danbury	1	3	2	1(1)	1	1(1)	....	....	....	....	....	....	2	....	....	....
Greenwich	....	1	....	1	....	1	....	1	....	....	....	....	....	1	....	....
Hartford	5	....	5	5	7	....	2	....	....	....	....	2[1]	....	....	1	1
New Britain	1	2	....	1	3	....	....	....	....	....	....	....	....	....	....	....
New Haven	6(1)	4	....	1	....	....	....	....	7	....	....	....	1	1	1	....
Norwich	1	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....
South Manchester	1	1	3	3	....	1	....	....	1	1	....	....	....	....	....	....
Stratford	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Suffield	1	....	1	1	....	2	....	....	....	....	....	....	....	....	....	....
Torrington	....	2	....	....	1	....	....	....	1	....	....	....	....	....	....	....
Waterbury	2	1	....	1	2	(1)	....	1	3	....	....	....	1	....	....	....
Wethersfield	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
District of Columbia:																
Washington	9(1)	....	....	4	....	10	9	....	3(1)	2	....	6	....	....	....	....
Florida:																
Daytona	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lakeland	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....

For footnotes, see page 540. *Figures in parentheses refer to apparatus in reserve.*

MOTOR APPARATUS IN SERVICE (Continued).

City and State.	Chief's Cars.	Chemical and Hose With Ladders.	Chemical and Hose Without Ladders	H. & L. Trucks.	Triple Combinations.	Hose Wagons.	Tractors.	Chemical Engines.	Gasoline Pumping Engine With Hose.	Pumping Engine Without Hose & Chem.	Gasoline Pumping Engine With Chemical.	Gasoline Driven Steam Pumper.	Fuel or Service Wagons.	Repair Wagons.	Squad Wagons.	Water Towers.
Florida (Continued):																
Plant City	....	....	....	1	....	2	....	2	....	....	....	....	....	....	....	....
Quincy	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
St. Augustine	....	....	....	1	1	1	....	....	....	....	....	....	....	....	....	....
St. Petersburg	1	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....
Sarasota	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
West Tampa	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Georgia:																
Americus	....	2	....	1	1	2	....	....	....	....	1	....	....	....	....	....
Athens	1	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Atlanta	4	....	....	3	6	....	1	1	....	....	....	....	....	....	....	....
Brunswick	1	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Carrollton	....	2(1)	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Douglas	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Moultrie	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....
Newman	1	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....
Rome	1	2	....	1	1	1	1	....	1	....	....	....	....	....	....	....
Valdosta	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Idaho:																
Boise	1	4	1	1	....	....	1	....	....	....	....	....	....	....	....	....
Pocatello	1	1	....	....	....	....	....	1	1	....	....	....	....	....	....	....
Illinois:																
Aurora	1	5	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Belvidere	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Bloomington	1	4	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Cartersville	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Cairo	1	3	....	....	1	1	....	....	1	....	1	....	....	....	....	....
Carrollton	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Champaign	1	2[2]	....	1	....	....	....	....	1	....	....	....	....	....	....	....
Charleston	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Chicago	33(5)	....	37(2)	34(5)	....	91(21)	15	10	16	....	....	8	28	1	3	1
Chicago Heights	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Du Quoin	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Dwight	....	....	....	....	1	1	....	....	1	....	....	....	....	....	....	....
East Moline	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
East St. Louis	2	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Elgin	1	3	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Evanston	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Granite City	....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....
Highland Falls	....	1	....	1	....	3	....	1	....	....	....	....	....	....	....	....
Jacksonville	1	....	(1)	....	2	....	....	....	....	....	....	....	....	....	....	....
Joliet	1	1	....	1	2	....	1	....	2	....	....	....	1	....	....	....
Macomb	1[3]	1	....	....	....	1	....	1	....	....	....	....	....	1	....	....
Murphysboro	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Normal	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Pana	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....
Paris	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Paxton	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....
Pekin	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....
Waukegan	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Witt	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Woodstock	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Indiana:																
Anderson	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....
Bloomfield	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....
Decatur	....	1	....	1	....	1	....	....	....	....	....	....	....	....	....	....
Elkhart	1	1	....	....	....	3	....	....	1	....	....	....	....	....	....	....
Frankfort	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Garrett	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Gary	1	2	2	1	....	3	....	....	....	....	....	....	....	....	....	....
Kendallville	....	....	....	....	1	1	....	....	....	1	....	....	....	....	....	....
Kokomo	1	1	....	1	....	....	....	....	2	....	....	....	....	....	....	....
La Fayette	1	4	1	1	....	....	....	1	....	....	....	....	....	1	....	....
La Porte	1	1	....	1	1	....	....	....	....	....	....	....	....	....	....	....
Martinsville	..	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Plymouth	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Richmond	1	5	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Shelbyville	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Terre Haute	3	7	....	4	3	....	....	....	....	....	....	....	1	1	....	....
Vincennes	1	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Wabash	....	1	....	1	....	1	....	....	....	....	....	....	....	....	....	....
Warsaw	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Washington	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Whiting	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....

Iowa:																		
Burlington	1	3	1	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Cedar Rapids	1	2	1	1	1	....	....	....	1	....	....	....	....	....	....	....	....	....
Council Bluffs	1	2	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....
Davenport	1	5	....	1	....	3	1	....	1	....	....	....	....	....	....	....	....	....
Denison	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Fairfield	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Grinnell	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Keokuk	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....
La Mars	1	1	1	....	....	....	....	1	....	1	....	....	....	....	....	....	....	....
Marion	....	....	....	1	....	4	....	....	....	....	....	....	....	....	....	....	....	....
Mason City	1	1	....	1	1	1	....	....	....	....	....	....	....	....	....	....	....	....
Muscatine	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Oelwein	....	1	....	1	....	1	....	....	....	....	....	....	....	....	....	1	....	....
Sioux City	1	4	1	2	2	....	....	....	....	....	....	....	....	....	....	....	....	....
Washington	....	1	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Waterloo	1	4	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Kansas:																		
Cherryvale	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Fredonia	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Independence	1	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....
Kansas City	3	6	2	2	....	1	....	....	1	....	....	....	....	....	....	....	....	....
Mulberry	....	....	....	....	....	2	....	....	....	....	....	....	....	1	....	....	....	....
Newton	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....
Olathe	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Parsons	1	2	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Topeka	2	3	....	2	....	....	....	....	1	....	....	....	....	....	....	....	....	....
Kentucky:																		
Cynthiana	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Harrodsburg	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Henderson	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Lexington	1	1	....	1	2	....	....	....	....	....	....	....	....	....	1	....	....	....
Richmond	....	1	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....
Russellville	....	....	....	1	....	2	....	....	....	....	....	....	....	....	....	....	....	....
Louisiana:																		
New Orleans	9	2	....	4	....	6	....	2	2	....	....	....	....	1	....	1		
Maine:																		
Augusta	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Biddeford	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Calais	....	....	....	1	....	3	....	....	....	....	....	....	....	....	....	....	....	....
Dexter	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Kennebunk	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Portland	3	....	1	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....
Rumford	....	3	....	2	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Skowhegan	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Maryland:																		
Baltimore	12(1)	22(2)	....	13(1)	4	....	32(2)	....	4	....	4	....	....	2	....	2		
Massachusetts:																		
Adams	....	1	....	2	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Belmont	....	....	2	1	1	....	....	....	1	....	....	....	....	....	....	....	....	....
Beverly	1	....	2	1	....	....	1	....	1	....	....	....	....	....	....	....	....	....
Brockton	1(1)	5(1)	....	3	....	....	4	....	1	....	....	1	....	....	....	1	....	....
Cambridge	2	2	1	....	1	....	1	....	....	....	1	....	....	....	....	....	....	....
Fitchburg	1	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Foxboro	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Framingham	....	1	....	1	1	1	....	....	....	....	....	....	....	....	....	....	....	....
Gardner	1	2	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Gloucester	1	....	1	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....
Greenfield	....	....	2	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Haverhill	1	2	....	1	1	2	....	....	....	....	....	....	....	....	....	....	....	....
Hingham	1	....	1	1	....	2	....	1	1	....	....	....	....	....	....	....	....	....
Lowell	3	....	5	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....
Ludlow	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Lynn	3	3	....	4	....	5	9	2	1	....	....	5	....	....	1	....	....	....
Malden	2	1	4	1	....	....	....	....	....	....	....	....	....	1	....	....	....	....
Marblehead	....	....	....	2	2	2	....	....	....	....	....	....	....	....	....	....	....	....
Middleboro	....	1	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Milton	1	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
New Bedford	4	1	3	4	....	....	....	....	1	....	....	....	....	....	....	....	....	....
North Andover	....	1	....	....	....	....	....	....	8	....	....	....	1	1	....	....	....	....
North Easton	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Peabody	1	3	....	1	....	1	....	....	1	....	1	....	1	....	....	....	....	....
Quincy	1	3	....	1	....	....	1	....	1	....	....	....	....	....	....	....	....	....
Reading	....	1	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Revere	1	1	1	1	....	1	....	....	1	....	1	....	4	....	1	....	....	....
Salem	1	1	2	....	....	....	....	....	1	....	1	....	....	....	....	....	....	....
Somerville	2	....	4	1	....	....	1	....	1	....	....	....	....	1	....	....	....	....
Taunton	1	....	4	....	....	....	....	....	....	....	1	....	....	1	....	....	....	....

For footnotes, see page 540.

MOTOR APPARATUS IN SERVICE (Continued).

City and State.	Chief's Cars.	Chemical and Hose With Ladders.	Chemical and Hose Without Ladders	H. & L. Trucks.	Triple Combinations.	Hose Wagons.	Tractors.	Chemical Engines.	Gasoline Pumping Engine With Hose.	Pumping Engine Without Hose & Chem. Gasoline	Gasoline Pumping Engine With Chemical.	Gasoline Driven Steam Pumper.	Fuel or Service Wagons.	Repair Wagons.	Squad Wagons.	Water Towers.
Walpole	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Waltham	1	2	....	....	....	....	....	1	1	....	....	....	2	....	....	....
Ware	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Watertown	1	1	....	1	1	....	....	1	....	....	....	....	....	....	....	....
Wellesley	1	2	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Westford	1	....	....	....	....	3	2	....	....	....	....	....	....	....	....	....
Winthrop	1	1	....	2	....	1	....	....	1	....	....	....	....	....	....	....
Worcester	5	9	12	1	5	2	....	....	5	....	5	....	3	....	1	1
Michigan:																
Albion	....	1	....	1	....	1	....	....	....	....	....	....	....	....	....	....
Alpena	1	1	....	....	1	1(1)	....	....	....	....	....	....	....	....	....	....
Ann Arbor	....	....	....	2	....	....	....	....	2	....	....	....	....	....	....	....
Battle Creek	1	1	....	1	4	....	....	....	....	....	....	....	....	1	....	....
Cadillac	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....
Detroit	10(3)	14	2	12	1	16	11	1	17	16	1	....	6	1	4	1
East Jordan	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....
Greenville	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Holland	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....
Lapeer	....	....	....	....	1	1	....	....	....	....	....	....	....	....	....	....
Iron Mountain	....	2	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Marquette	1	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....
Manistee	1	....	1(1)	....	1	....	....	....	....	....	1	....	....	....	....	....
Pontiac	1	3(1)	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Wyandotte	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Minnesota:																
Anoka	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Bemidji	....	1	....	....	....	1(1)	....	....	....	....	....	....	....	....	....	....
Chisholm	....	....	2	1	1	....	....	3	....	....	....	....	....	....	....	....
Cloquet	....	....	....	1	1	2	....	(2)	....	....	....	....	....	....	....	....
Detroit	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Duluth	1(1)	2	....	3	3	....	....	....	....	....	....	....	....	....	....	....
Little Falls	1	1	3	1	....	1	1	2	....	....	....	....	....	....	....	....
Minneapolis	5(1)	5	....	1	6	....	3	....	....	....	....	....	....	....	3	....
St. Cloud	....	1	....	....	....	....	....	....	1	....	....	....	....	....	....	....
St. Paul	6(2)	....	1	3(1)	....	1	4	....	3	1	....	2	....	....	2	1
Stillwater	....	....	1	....	....	....	....	....	1	....	....	....	....	....	....	....
Thief River Falls	....	1	1	1	....	....	....	....	....	....	....	1	....	....	....	1
Two Harbors	....	....	....	1	....	1	....	....	....	....	....	....	....	....	....	....
Virginia	1	2(1)	....	....	1	....	....	....	....	....	....	....	1	....	....	....
Willmar	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Winona	1	2	....	....	....	....	....	....	....	....	....	....	1	....	....	....
Mississippi:																
Jackson	1	3	....	1	1	....	1	....	....	....	....	....	....	....	....	....
Vicksburg	1	2	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Missouri:																
Cameron	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Carthage	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Chillicothe	....	....	1	1	....	1	....	....	....	....	....	....	....	....	....	....
Hannibal	....	2	1	1	....	....	....	....	....	....	....	....	....	....	....	....
Kansas City	5	13	....	6	....	2	4	....	1	....	....	....	....	....	....	....
Maryville	....	2	....	....	(1)	....	....	....	....	....	....	....	....	....	....	....
Moberly	....	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....
Monett	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....
St. Louis	14	....	....	6	....	1	4	....	13	....	....	....	2	1	....	....
Springfield	1	1	....	2	....	2	....	1	1	....	....	....	1	....	....	....
Washington	....	1	....	1	....	1	....	....	....	....	....	....	....	....	....	....
Webster Groves	2	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....
Nebraska:																
Norfolk	....	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....
Nebraska City	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Nevada:																
Reno	....	....	3	1	....	....	....	....	1	....	....	(2)	....	....	....	....
New Hampshire:																
Concord	....	....	5	....	....	....	....	....	1	....	....	....	....	....	....	....
Laconia	....	2	1	2	1	2	....	....	....	....	....	1	....	2	....	....
Nashua	1	1	....	....	....	....	....	....	....	....	....	....	....	....	1	....

[1]Steam propelled; [2]2 aerials; [3]to be delivered; [4]with tractor; [5]these are on steamer and H. & L. trucks; [6]owned by chief; [7]2 are aerials; [8]part are aerials; [9]with ladders; [10]each combination tows a steamer; [11]drawn by combination; [12]4 on hand, 3 contracted for; [13] 7 attached to H. & L. trucks and 22 to steam fire engines.

The WEEK'S NEWS

Road Developments in New Jersey, North Dakota, Texas—Health Conditions in Army Camps—Control of Sanitary Improvements in Minnesota—Cleveland's Filtration Plant—Hamilton's Water System Inadequate—Dimming the Advertising Sign—Heat Unit Reduction Fails in Indiana—San Francisco Wins Gas Rate Case—Shreveport Abolishes Segregated District—Government Control of Explosives—Norfolk, Va., Wants City Manager—Air Highways Planned.

ROADS AND PAVEMENTS

Completing Military Road Under Difficulties.

Wrightstown, N. J.—In spite of the fact that the Priority Board at Washington refused to make an exception of the state highway commission in the matter of exemption from embargo of the stone required for the Wrightstown road from Georgetown, work on that job is progressing at a rate that has brought forth considerable favorable comment from prominent contractors. Adverse conditions, under which the state highway department was forced to work, instead of retarding the progress of the road, has served as sort of an impetus to the engineering department to complete the work by the first of the year. The state highway department is building the road under its own supervision with the aid of convict labor. It expects to establish a record for construction when the four-mile job is finished, within two months. Not until the first of November was work begun, but already the four and one-tenth miles have been graded and stone is being laid. The road, upon completion, will be bituminous macadam, penetration type. Water-bound macadam was found to be out of the question at this time of the year. The binder to be laid under the supervision of the state highway department will be a hot bitumen mixture, to be transported to the job in specially heated tanks from Philadelphia. Edward E. Reed, division engineer of the department, is in direct charge of the work, and the actual construction operations are under the foremanship of Richard Delaney and John Stanley, department road foremen, while the purchasing and accounting on the work is being done by Robert A. Exton, clerk of convict labor for the department.

Road Activities in New Jersey.

Trenton, N. J.—Surveys of the fifteen routes of the proposed state highway system and estimates of cost for every section have practically been completed, the state highway commission reports in a semi-annual statement submitted to Governor Edge. In addition, General Goethals, state engineer, has given assurances that a full report and final estimates of cost for the highway system will be submitted to the commission at its meeting next month. Actual construction may be begun about April 1. The commission has been advised that probably $3,165,000 derived from the road tax will be available for the first year's work, which, it is expected, will include the construction of nearly 100 miles of roadway in the new system. In addition to the tax receipts, about $2,000,000 from the motor vehicle fund will be available for apportionment to the various counties for repair work. Thus far the allotments for repairs for the past year amounts to nearly $1,500,000. Location of Camp Dix at Wrightstown and Camp Merritt at Tenafly has imposed an additional burden on the road department. Improvement of the road from Wrightstown to Georgetown is being carried on by the department with convict labor, and it is expected that the four miles under reconstruction will be completed within two months. The road will be bituminous macadam of the penetration type. Water-bound macadam was found to be out of the question at this time of the year. It is estimated that the work will cost approximately $90,000. At Camp Merritt, Tenafly, the commission has under construction a stretch of two miles of highway. The report shows that convict labor has been successfully employed throughout the state, five camps having been established for this purpose. Figures showing the amount of money expended for convict labor will be submitted to governor Edge within the next month. It is said that these will show a considerable saving in the cost of road construction. During the six months that the present commission has been in existence contracts amounting to $146,151 have been let, completed and paid for. This does not include several miles of road construction for which contracts were awarded prior to the organization of the commission. The commission awarded contracts and paid for seven and a half miles of roadway as follows: Salem County, $44,325; Bergen, $28,476, Mercer, $5,036; Union, $45,108; Passaic, $23,204; besides a number of contracts now in process of completion.

Surveys Completed for Big Mileage.

Bismarck, N. D.—The state highway commission has completed field work on 15 miles of road in Sargent, 21 in Barnes, 12 in Pierce, 18 in Benson, 12 in Eddy, 35 in Stutsman, 25 in Ramsey, 20 in Stark, 13 in LaMoure, 21 in Bowman 16 in Foster and 21 in Towner counties, all of which are projects which have been approved for federal aid under the post roads act. Surveys have wholly been completed in Benson, Cass, Cavalier, Foster, Grand Forks, Griggs, Richland, Traill and Williams counties on projects totaling 173.1 miles and the projects which the commission has undertaken during the first year of its existence and which it hopes to have ready for bids by January 1 aggregate 478.8 miles.

Texas Asks for Road Materials Priority.

Austin, Texas.—The state highway commission has written to Col. R. S. Lovett, at Washington, the following letter regarding the recently promulgated embargo on road materials: "The state highway commission of Texas desires to voice its approval and assent to priority order No. 2, denying the use of open freight cars for shipments of materials and supplies for the construction, maintenance or repair of public or private highways, roadways, streets or sidewalks for the reason that the same, as we regard it, is conceived in the high and laudable purpose and plan to give preference to the transportation of food and fuel over the railways of this country. We would be other than patriotic if we did not regard this order in this light, now that we wish it understood that we request or petition that the same be rescinded or modified in any particular until a changed situation should demand it. We, however, respectfully call your attention to the fact that the construction, maintenance and repair of certain public roads and highways is in a measure helpful to the railroads in the proper transportation of food and fuel and that in some instances where the railroads do not reach into the very productive food and feed fields it is necessary for the construction, maintenance and repair of these highways that the short haul road may become an aid and adjunct to the railroads; and that, secondly, there are certain great trans-state roads that should be completed as military highways. This commission has in mind certain portions of Texas very rich in food production, notably East Texas, where the wastage in the field is very great on account of lack of road facilities. The commission also have in mind certain trans-state roads which, when completed, when military neces-

sities arise, could be used as great highways for transportation of troops and army supplies. We therefore respectfully suggest that in your next priority order you give priority for the construction, maintenance and repair of public highways that may be specifically designated by yourself upon the application of the highway department of any state. The commission will be pleased to have your views on this subject."

SEWERAGE AND SANITATION

State Control of Improvements.

St. Paul, Minn.—The state board of health has begun the enforcement of a rule recently passed to govern the construction of water-supply, sewerage and refuse-disposal systems. All plans for such improvements must be first submitted for revision and approval by the state board. According to the regulations "no system of water-supply, sewerage or refuse disposal for public use which affects or tends to affect public health shall be installed, nor shall any such existing system be materially altered or extended until complete plans and specifications for the installation, alteration or extension, together with such information as the state health board may require, have been submitted in duplicate and approved by the board so far as relates to their sanitary features. All construction shall take place in accordance with the plans as approved, whether with or without modification. Whenever any governing body of any municipality having charge thereof shall determine that there shall be any material change in the plans, construction or operation of any such system, such governing body shall submit to the state board of health, in duplicate, a detailed statement of such action on such contemplated changes before it shall enter upon the making of such changes or enter into any contract therefor or any part thereof, and then such changes shall be made only after approval as to all matters liable to affect public health, by the state board of health."

Health Conditions in Army Camps.

Washington, D. C.—Following is a detailed report on health conditions at all National Guard and National Army camps for the week ending November 9. The report to the surgeon-general of the army for that week, the last for which complete figures were available, states that: "Of the National Guard camps, those composing the troops from northern states show very much less sickness of a communicable nature. Extensive outbreaks of measles exist at Camp Sevier, Camp Wheeler, Camp Bowie and Camp Shelby. A considerable increase in measles cases is probable at other camps composed of recruits from southern states, viz., Camp Beauregard and Camp Doniphan. Thirty-four new cases of pneumonia were reported at Camp Wheeler and 39 at Camp Bowie. Eight cases of meningitis were reported from National Guard camps—Sevier, 2; Doniphan, 2; Kearny, 4. In the national army, as in the national guard, the camps composed of northern troops show much better health conditions than those whose personnel comes from southern states, with the exception of Camp Funston, where 24 new cases of pneumonia and 9 new cases of meningitis were reported during the week. Other communicable diseases have occurred at this camp—mumps, scarlet fever, diphtheria, small-pox and chicken-pox. At Camp Pike 683 cases of measles were reported and 76 cases of pneumonia. Camp Jackson, 370 cases of measles. All reports indicate that the type of measles is mild in character and that few complications are occurring among the cases. Mortality reported among pneumonia cases is also low. 'Cases of sickness' include all causes of excuse from duty, first reported during the week, for any indisposition or ailment whatever, except injuries, whether or not ordered to hospital. It includes a large proportion of cases for which, in civil life, the patient would not even consult a physician. All figures on sickness in these reports are of new cases first reported during the week ending Novmber 9. The totals and proportions given, therefore, are not of all on the sick list during the week. The military reports class the total number of sick and injured as 'total non-effectives' and the proportion of this total to the strength of a command as the 'non-effective rate.' The non-effective rate is usually higher than the weekly rate for new cases of sickness reported (the 'admission rate'), because individual cases of illness are, on the average, of more than one week's duration. The non-effective rate for the entire National Guard in th United States was, for November 9, 38.9 per thousand; the non-effective rate for the national army was 25.2 per thousand."

Reports on health conditions of the American expeditionary forces for the same week contain the following information: Annual admission rate per thousand—pneumonia, 16.6; dysentery, 2.0; malaria, 1.0; venereal disease, 181.5; typhoid, 0.0; paratyphoid, 0.0; measles, 27.1; meningitis, 1.0; scarlet fever, 1.9. The non-effective rate per thousand for November 12 was 31.6. The total of deaths for week ending November 9 was: for disease, 4; pneumonia, 3; heart disease, 1; from wounds received in action, 3; from accidental gunshot wound, 1. "The annual admission rate per thousand for a given disease" is defined as the ratio of new cases of that disease, which would be found per thousand men per year if the proportion continued throughout the year the same as during the period covered by the report.

Gas Explodes in Sewer.

New York, N. Y.—An explosion of gas in a sewer under Forty-second street near the East River tore up several yards of street, smashed the windows in houses for blocks around, stopped traffic on surface car lines and also in the Steinway tunnel to Long Island City, and injured one woman so badly that she was taken to a hospital. The explosion occurred just as the homeward-bound crowds were thronging the streets. The paving was torn up between the car tracks and for several hours the crosstown line was diverted to another route. The explosion also broke the roof of the Steinway tunnel so that traffic was suspended till a wrecking crew cleared away the debris.

Bond Issue Voted for Sewerage Improvements.

Johnstown, Pa.—Mayor Franke and the other city officials are much gratified at the passage of the $775,000 bond issue for sewer, garbage disposal and paving purposes by a vote of 2,025 to 1,623. Most of the issue, $500,000, is to be in 15 and 30 year bonds and will provide funds for a complete system of main and street sewers and also a disposal plant as ordered by the state board of health.

Milk Supply of Capital Deteriorates.

Washington, D. C.—There was an increase in the amount of low-grade milk and cream and watered milk sold in the District during the past fiscal year, according to the recent annual report of health officer William C. Woodward. He attributes it to the high cost of producing milk and to the high price for which it was sold during the year. "The greater the price of milk," declares the health officer, "the greater is the temptation to water and to skim it, since the returns thus obtained for every gallon of water added to milk or cream abstracted is greater. Another factor in leading to a deterioration of the milk supply of the District is probably the difficulty that has been experienced by the health department in enforcing the laws and regulations relating to milk." Under the legal entanglement holding up prosecutions which is now being unraveled in the courts, much milk and cream has been brought into the District from unknown sources, the report states, "and with a history that the vendors of such milk and cream prefer to conceal rather than disclose." Discussing the work of the bureau of sanitary inspection of the department, the report states that 42,651 sanitary inspections were made during the year. Violations of laws and regulations for the prevention and abatement of nuisances were reported in 11,885 instances, and compliance was procured in 11,366 instances; 233 informations charging violations of the sanitary laws and regulations were filed in police court. Fines and collaterals collected amounted to $64. Eight-hour law inspectors, whose work

comes under the jurisdiction of the health department, made a total of 11,140 inspections. Fines were imposed in nine cases, amounting to $160. The cost for enforcing this law for women during the year was $4,574.67.

Health Department Makes Tuberculosis Survey.

Boston, Mass.—The Boston health department is at present engaged in a tuberculosis survey of the city. This survey is calculated to disclose the actual number of known cases as well as the conditions in which they are to be found. It has been rendered necessary by the fact that present statistical information indicates a larger number of cases of recognized tuberculous condition in the city than actually exists, because the same case has often been reported at different times from different sources and from different addresses and not infrequently under different names. In connection with the survey a new system of checking and verifying reported cases has been put in operation to insure the accuracy of statistical information regarding this disease in the future. The reported cases in Boston from January 1 to October 1, 1917, number 2,392, but excluding the duplicates the actual number is 2,136. Up to the present time 8,000 visits have been made to pulmonary and laryngeal cases that are carried on the tuberculosis registry. A large number of visits is yet to be made, but the department expects that the results will amply repay the work.

Sanitary Regulation of Privies.

Alexandria, La.—The parish officials have passed the following resolution regulating the construction and sanitary maintenance of privies:

Every owner of property within the limits of the parish shall have at each dwelling and place of business a sanitary pail privy, or a septic tank privy, or a Kentucky sanitary privy, or a latrine on army plan approved by state board of health. A privy shall be considered sanitary when it has a fly-proof receptacle or vault, and when the seat has a self closing hinged lid so made and fitted as to prevent access of flies to the excrement. The receptacle shall be kept watertight, and one ceasing to be so must promptly be replaced by a sound one.

The floor shall be solid and watertight, covering the entire base of the building inside the walls. The roof of each privy or earth closet shall be watertight, and if sloped to the rear of the house it shall project not less than six inches beyond the rear of the house. The seat shall have a self-closing hinged cover over the box opening. That flies may be excluded the compartment under the seat in which stands the night soil container shall be tightly constructed of sound lumber without cracks or crevices. Any opening in this compartment for ventilation shall be screened with 18-mesh cross-wire per inch. The box, tub or can soil container shall be strongly constructed. It shall rest on the floor of the privy in such a position that its top shall not be more than one inch below the under surface of the closet seat. Whenever such box, tub or can container shall cease to be watertight it shall be replaced by a sound one.

There shall be at the back or side of each privy where containers are used an opening for the removal of the night soil container, which opening shall be provided with a tightly fitting let-down board, or 18-mesh cross-wire per inch cover, hinged to the house, and so constructed as to prevent the access of flies to the night soil. This cover shall be provided with a hook or button, and shall always be kept closed. Where practicable, the opening shall abut on a public alley so as to be readily accessible to the city scavenger.

In incorporated communities the board of councilmen shall have the power to fix a privy tax wherewith to maintain a salaried scavenger. This privy tax shall be payable monthly in advance to the town treasurer, or someone designated by the council to receive and dispense such money. The scavenger shall be hired on a salary by the councilmen, and shall be responsible to the town for efficient discharge of his duties as specified in the ordinance.

It shall be the duty of the scavenger to remove the excrement from each privy at least once a week; he shall remove and replace the receptacle with care to maintain the privies sanitary. He shall report to the councilmen or local health officer all privies that have not maintained a sanitary condition because of wear and tear or otherwise.

The material collected by the scavenger shall be disposed of by proper burying in a lot at some distance away from town. The use of such material as fertilizer is prohibited.

Where cesspools, septic tanks or Kentucky privies are used they shall not be allowed to overflow, or effluents from such pools or tanks shall not be discharged into running streams or disposed of by discharging into lines of tile drain laid below the surface of the ground.

Pit privies shall be constructed only in such places and in such manner as approved by representatives of the state or parish board of health.

Failure to comply with the above sections and all its provisions shall subject the offender to a fine of five dollars or imprisonment of five (5) days, and a fine of one dollar or imprisonment for each day after being notified that the privy remains in an unsanitary condition.

WATER SUPPLY

Whole Supply to Be Filtered.

Cleveland, O.—The entire city water supply will be filtered, beginning the early part of January, according to an announcement by water commissioner Dusinberre. He said that the present pumpage of 8,000,000 gallons in twenty-four hours would be increased in about six weeks, and that three-fourths of the plant facilities, with a capacity to pump about 100,000,000 gallons daily, would be put in operation shortly after that. This quantity, Mr. Dusinberre explained, is equivalent to the present city water needs. The 8,000,000 gallons now being filtered daily, according to the water commissioner, are being pumped to test the plant apparatus and to lay the foundation for a working organization at the plant. "The chief problem now is to work up an organization," said Mr. Dusinberre. "We have ten men working at the plant, and this staff will be increased to about sixty when the entire city is supplied with filtered water. At present, the water that is filtered is mixed with the unfiltered product, as there is no provision for sending it separately through the mains."

Water Supply in Serious Condition.

Hamilton, O.—The water situation in Hamilton has been growing more serious for several weeks. With only fourteen feet of water in the reservoir the pumps were unable to get any water from the wells. Manufacturers using city water were cut off for a day and consumers were urged to be as economical as possible. Fire chief William Dowty said that if a big fire should break out and it would be necessary to use six or eight streams, the water supply would not last very long. Mayor Holzberger said that he has been trying for months to get some action to better conditions at the water works. He said that as far back as Feb. 13, 1917, he had named committees of citizens to look into all of the needs of the city plants. He said these committees had met several times but that council failed to cooperate. The head of the water supply has been steadily going down, the mayor said. In his judgment the wells are in a wrong location and he would like to see a new station secured. Meanwhile the consulting engineers, Mead and Seastone, have reported on plans for the improvement of the supply and steps are being taken to start construction work as soon as possible. The report of the engineers estimates that it would cost $89,455 to place the distribution system alone in first class condition, in which case fire protection would be ample. It proposes the laying of several new mains. The report continues: "From what has been stated regarding the condition of the present well system, the draft on the ground water and the consequent lowering of the ground water level, it is apparent that immediate steps should be taken to relieve the situation and increase the available supply. The inadequacy of the yield has been fully appreciated by those in charge of the system for some time." These recocmmendations in brief are: To construct three new ten-inch wells and connect them with the present system, and to construct a new suction pipe at the elevation of the pump in the booster well. As arranged at present the suction pipe is about 9 feet higher than the booster pump and acts, the report says, as a syphon, and if the water level would not in the future continue to drop, a new suction line might be constructed on the same lines as the present one, but the lowering of the level is liable to continue and therefore a new suction line should be constructed at the same elevation as the pumps at the booster station, dropping slightly toward the north end to insure the absence of air pockets. The three 10-inch wells should, of course, be provided with independent valves and screens of adequate length and be laid out on lines that will insure the maximum efficiency as well as the minimized cost of upkeep, and the present wells should be connected with the new suction so that any or all of them may at any time be discontinued if desired." The report says that careful estimates of the cost of this work as made nearly six months ago was $16,430. Since that time costs have risen and to take care of this increase

and other emergencies council has placed $18,000 in the water works fund. A few days after the submission of this report, health officer A. L. Smedley published the following warning: "The city water is contaminated and dangerous to drink wtihout being boiled. A chlorination plant has been ordered by telegraph. It will take two or three days to install it. Until that time it is dangerous to drink city water without first boiling it to avoid typhoid fever epidemic. Due notice will be given when the water is safe to use without boiling."

Commission Sets Rates for Municipal Plant.

Bangor, Me.—The new water rates to be charged to consumers in this city have been ordered by the public utilities commission, according to secretary Walter I. Brown of the Bangor board. In some of the items, the local board did not wish to make a charge, as, for instance, automatic sprinklers, which were held by many to be a benefit to the city as an extension of the fire department system rather than a service to be charged for. However, the commission decided that the charge must be made, and the Bangor board obeys. The new rates do not vary much from those that have prevailed since 1893, Mr. Brown said. They will make consumers who receive more water pay more, and will reduce the rates to those who use less. To householders the rates will be about the same, except that those who have hot water heating systems must pay 40 cents a year for that service, a merely nominal fee. For those who have steam heating plants in their homes the fee will be $1 a year. There has been no charge for this in the past. Mr. Brown says that there is to be no fee service at all in the future. For two tenement houses the rate is slightly less. The first faucet will be $2 instead of $3. Each washbowl in a private home will cost $1 hereafter. Formerly the first two were $1 each, and the next five 50 cents each. The rates to bakeries are changed so that the larger firms will now pay more, and the smaller concerns, using less water, will not have to pay so much. Rates to barber shops, circuses and restaurants are practically the same. Mr. Brown says that the Bangor rate for automatic sprinklers is probably the lowest in the whole country. Rates for hose to householders remain the same. Greenhouse owners now pay according to the number of openings rather than on the elastic schedule that formerly prevailed. Rates for steam boilers are now based on the square area of the grate. Set wash boilers are 50 cents, half the former rates. Churches now pay only half the rate formerly paid.

STREET LIGHTING AND POWER

Advertising Sign Economy.

Washington, D. C.—The cities have already become accustomed to the absence during part of the evening of illuminated advertising signs, the operation of which was limited by a recent order of the United State Fuel Administration. The order says: "The use of coal for any of the purposes hereinafter described, except to the extent hereinafter indicated, is wasteful, and any person using any coal for such purposes is engaging in a wasteful practice or device in handling or dealing with coal, and that the use of coal for such purposes is prejudicial and injurious to the national security and defense, and a cause of scarcity, locally and generally." No electricity shall be furnished or used which is "generated or produced, in whole or in part, by the consumption of coal, for the purpose of providing, maintaining, lighting or operating, before the hour of 7.45 p. m., or after the hour of 11 p. m., electrically illuminated or display advertisements, notices, announcements, signs, designation of the location of an office or place of business or of the nature of any business, electric searchlights, or (external) illumination or ornamentation of any building, except as in special cases hereinafter further or otherwise provided or limited, namely: (a) This order shall not apply to the United States Government, the government of any commonwealth or state of the United States, or to any city, county, town, or other governmental subdivision in any such commonwealth or state. (b) This order shall not apply to the maintenance of street lights by any city or town or within any city or town under a contract with the officials thereof for such maintenance, or to the maintenance of any lights for any purpose by, or in compliance with orders of, any public authorities. (c) Electric signs affixed to the street fronts of buildings over the street entrances thereof or over the street entrances to stores, shops or other places of business therein, or extending therefrom over the sidewalks, for the purpose of announcing the name or business of a retail shop or store, or the name and location of a theatre or other place of amusement or of a hall or other place of public assembly, together with the name of the play or other entertainment given therein, or of the purpose of any public assembly to be held therein, as the case may be, may be lighted or illuminated or operated by electricity, generated or produced by the use of coal, during the period from one-half hour after sunset until such time, not later than 11 o'clock in the evening, at which time, in the case of a place of business, the same is closed for the conduct of business therein in the same manner and to the extent that such business is conducted therein during the daytime business hours, and in the case of places of amusement and public assembly heretofore referred to until one-half hour after the time fixed for the beginning of an entertainment or of the meeting or other public assembly, as the case may be: Provided, That the size of any such sign and the amount of electricity needed to operate and illuminate the same shall be reduced at any time upon direction of the state fuel administrator of the state within which such sign is located. (d) This order shall not apply to porch lights upon houses or hotels or at the entrances to buildings occupied or open for ingress or egress during the night time, or to lights upon private driveways, walks, or in the grounds of any hotel, manufacturing establishment, or residence, or upon the platform of railroad stations, approaches thereto, or in railroad yards or grounds, or to lights to mark the location of fire escapes or exits; or to lights for any similar purposes when authorized by any state fuel administrator of the state within which such lights are located: Provided, however, That the number and power of any such lights, by this paragraph (d) permitted, shall be reduced at any time upon direction of the state fuel administrator of the state within which such buildings or grounds are located. (e) Nothing herein shall be construed to extend the length of time, fixed by agreement or otherwise, between any person and a state fuel administrator, for which any such sign or illumination may be displayed or operated. The state fuel administrators within the several states are hereby directed and authorized to see that the provisions of this order are observed and carried out within their several states, to report violations thereof to the United States fuel administrator, and to recommend to the United States fuel adminisrator action to be taken by him with respect to the sale, shipment, distribution, and apportionment of coal to the corporations, associations, partnerships, or persons so found to be acting in violation of this order."

Dismiss Heat Unit Reduction Plea.

Indianapolis, Ind.—The public service commission has dismissed the petition filed by the Indiana Gas association several months ago, asking for permission to reduce the standard of heat units in gas from 600 British thermal units to 550. The association is composed of all of the gas companies doing business in the state. It is evident that the companies wished to reduce the heat units of their gas in order that they might extract from it certain chemical elements that go to make explosive materials. This, of course, meant an added income for the companies-but they asked that they be permitted to make this change without reducing the cost of their gas to the consumer. Shortly after the petition was filed, a conference was called by the Government bureau of standards at Washington, and one of the subjects considered was the standard of heat units for gas. Representatives of gas companies over the country insisted at that conference that the heat units might be reduced without detriment to the gas, and they

sought to show that it would be all right to make such a change. Members of several public service commissions over the country opposed this proposition, however, and laid down the proposition that while there might not be serious complaint against the idea of reducing the heat units this must not be done unless the gas companies reduced their gas rates accordingly. For instance, it was pointed out, if gas at 600 heat units sells for 90 cents a thousand, it should sell at 75 cents a thousand if the heat units are reduced to 500. It would be unfair, it was held, to permit gas companies to make the reduction in the standard quality of their gas and at the same time permit the companies to continue to charge the same old price. Since that conference was held the gas companies apparently have reached the conclusion that there should be no objection on their part to the dismissal of the petition by the public service commission. Every gas company in Indiana was interested in the petition, for if it had been granted every company would have had the right to make the change in heat unit standards. From the start, the petition was regarded as a movement on the part of the companies to bring about, indirectly, an increase in rates.

City Wins in Gas Rate Case.

San Francisco, Cal.—The railroad commission has settled the fight between the city and the Pacific Gas and Electric Company in a decision fixing the future rates for gas in San Francisco at a maximum of 85 cents a thousand. The company had sought to charge a top price of $1. The new schedule follows: First 10,000 cubic feet a meter a month, 85 cents a thousand; next 20,000 feet, 80 cents; next 40,000 feet, 75 cents; next 80,000 feet, 70 cents; next 150,000 feet, 60 cents. In apartment houses where at least four meters are continuously served from one service and in one location the minimum monthly meter charge will be 35 cents. Other meters will have a minimum charge of 50 cents a month. The changes in schedule make a slight reduction in charge for customers using more than 10,000 feet a month, with the exception of the heaviest users, who will be forced to pay a slightly increased rate. The decision of the commission constitutes a complete victory for the city, according to assistant city attorney John J. Daly, who said that the big point of the fight was that the commission had placed a permanent low rate on gas despite the fact that the price of crude oil is continually advancing. "Where the company had contract price of 68½ cents for crude oil a few years ago," he said, "they are now paying $1.30 and $1.40." After a study of the valuation of properties, the increased price of oil, enlarged payroll and other factors of expense of the company, the commission fixed a rate base on which it established rates, allowing the company an income of approximately 8 per cent. This rate base, which is less than that submitted by the company, was put at $14,042,050. It represents the commission's invoice of the company's properties. The commission fixed the operating expenses of the company at $2,472,966 a year and the depreciation of equipment at $259,550. According to commissioner Devlin, the analysis made by the commission was very exhaustive. "We even had a study of the money market made," he said, "in order to determine how much it cost to get funds for the operation of the P. G. and E." In its investigation the commission found that the company had recently raised the pay of its employes a total of $24,000 a year. The city still is carrying on litigation against the company in the federal courts, but Daly considers this decision of more importance, as it affects the future rates, while the matter before the master in chancery is a dispute over the rates charged in the years 1913 to 1917. Commissioner Devlin explained that the reason the commission fixed a rate base less than that submitted by the company was due largely to the fact that certain duplications of properties and pipe lines, which the company had obtained from corporations now subsidiary to it, were omitted. According to Daly, a variation of $40,000 in the cost of producing gas means a variation of 1 cent in the rate necessary to cover it. For that reason, with bounding cost of production, the city feels that it has achieved a marked victory in the railroad commission's decision barring increased rates.

Following this San Francisco decision, concerted action by the cities, other than San Francisco, that are served with gas by the Pacific Gas and Electric Company was planned for the coming gas rate hearing before the railroad commission by representatives of twenty-nine of the forty cities included in the application of the gas company for an increased rate. Called by the League of California Municipalities, city attorneys from the near-by communities, and as far north as Chico and as far south as Fresno, met and appointed the following committee to arrange a plan for co-operation in securing a rate expert and possibly special counsel, to attend all the hearings and assist the local officers of each of the cities: Wallace Rutherford, chairman; A. F. St. Sure, Alameda; D. J. Hall, Richmond; Thomas H. Reed, San Jose; W. J. Locke, secretary of the league. The rates now in effect range from 90 cents upward, and the gas company has filed an application with the railroad commission for an increase by reason of the increased cost of oil and labor. It was urged that in combining for the employment of a gas engineer, or gas rate expert, the position of each of the cities would be strengthened. Among the communities represented were: Oakland, Berkeley, Alameda, San Bruno, Redwood City, San Leandro, Petaluma, Ross, Hillsboro, San Anselmo, Santa Rosa, San Mateo, Richmond, Sebastopol, Burlingame, South San Francisco, Fresno, Daly City, Oroville, Colusa, Woodland, Marysville, Los Gatos, Chico, Albany, Vallejo, San Jose, San Rafael and Napa.

FIRE AND POLICE

Law to Stop Bomb Plots.

Washington, D. C.—The recent order of the Bureau of Mines that any person found with explosives in his possession and who does not have a license issued by the Federal Government showing the purpose for which the explosives are to be used, will be arrested at once, is now in effect. The penalty is a fine of $5,000, or one year in prison, or both. This is the principal clause in a war measure passed by the last Congress, which is now being put into effect by the Bureau of Mines, Department of the Interior. Francis S. Peabody, of Chicago, a coal operator familiar with the use of explosives, has been appointed to act as assistant to the director of the Bureau of Mines, Van H. Manning, in the enforcement of the law. The director of the bureau is empowered to utilize the services of all United States officers and all police officers of the states, including the city police forces, county sheriffs, deputies, constables, and all officers in any way charged with police duties. The police of the cities have already been organized for this work, headed by a committee of chiefs of police in the big cities, of which Major R. W. Pullman, superintendent of police of Washington, is chairman. The police are not only to look after the enforcement of the law, but are also to make thorough investigations of all dynamite outrages and fires in factories and warehouses, and to make their reports to the director of the Bureau of Mines. Persons apprehended in plots to blow up factories and bridges will be turned over to the authorities for prosecution under federal or state laws. Most states have specially severe punishments for these crimes. New York has an extreme penalty of twenty-five years' imprisonment for the placing of dynamite with intent to blow up property. The penalty provided in the federal measure is merely to cover the illegal possession of explosives. The law provides that every one who handles explosives must have a license. The manufacturer, the importer, and the exporter must have licenses issued by the Bureau of Mines. The seller of explosives and the purchaser of explosives must also have licenses, these to be issued generally by county clerks or other local officers who are authorized to administer oaths. There will be at least one licensing officer in each county and more agents will be designated if the county is sufficiently large to warrant it. If a state has laws providing for a system of licensing persons manufacturing, storing, selling, or using explosives the state officials authorized to issue such licenses shall be designated as federal licensing

agents; also city officials qualified to issue city explosives licenses will be authorized to issue federal licenses. A federal license will not relieve any person from obtaining a license required under state laws and local ordinances. In each state there will be appointed a state explosive inspector, who will represent the Bureau of Mines in the administration of the law within the state. Only citizens of the United States or of countries friendly to the United States and the Allies may so obtain licenses. Contractors, mining companies, quarrymen, and others using large quantities of explosives which are handled by employes may issue explosives to such employes only as have licenses. The purchaser of dynamite, in obtaining a license, must state definitely what the explosive is to be used for, and will be held accountable for its use as stated and the return of any explosives that may be left. With the strict enforcement of this law the federal authorities hope to put a stop to all further dynamite plots.

Fireman Injured at Church Fire.

Norwalk, Conn.—The First Congregational church here was completely destroyed by a fire which also menaced St. Paul's Episcopal church and several adjacent dwellings and that caused a loss of $75,000, which is partially covered by insurance. The fire was caused by the explosion of a tinner's torch, in the steeple over the belfry, and spread rapidly. The spire fell into the roadway, and the flames spread to the main building. The 3,000-pound bell fell into the ruins shortly afterward, and the flying debris struck and injured Oscar Waleur, a fireman, who was taken to the hospital unconscious. An hour later the roof collapsed, leaving only the four walls standing. The fire was under control soon afterward. The church was built in 1816, and the bell formerly hung in the steeple of the old church. A new $12,000 organ installed the week before was destroyed by the flames and water. The steeple had been under process of repair, having been struck by lightning some time ago. One reason for the spread of the fire was the inability of the firemen to get water into the steeple, where the blaze originated.

Vote for Abolition of Segregated District.

Shreveport, La.—After a stirring campaign, the voters at a special election have approved the ordinance abolishing the segregated district by a vote of 1,376 to 642. The work of the Anti-Vice commission was secretly opposed by the vice interests, who used all sorts of methods to stop the opposition. Its last effort prior to election day activities was the distribution of the following anonymous circular throughout the city: "Notice to Property Owners, Renters and Voters: Keep the lewd woman where she is. Your mother, sister, wife and little children won't have to rub elbows with lewd women if you vote to keep her where she is. Scatter them over the city and you can't stop them. All this dope of the hired so-called vice experts does not mean anything to the small renter and home owner. Citizens' Committee." The anti-vice commission is confident that the vote in favor of abolishing the district would have been larger than it was had the ballots been printed in more definite form. Owing to the ambiguous wording of the ballots, many people voted against eliminating the district, when they thought they were voting for it, the commission declared, and vice versa. Discussion of measures to continue the work against the social evil, to prevent "scatteration" and clandestine violations of the ordinance were begun immediately after the results of the election became known. The anti-vice committee appointed by the Rotary Club last June made its final report and was followed immediately by the creation of a morals commission to be constituted as the anti-vice commission, of which the Rotary committee was the nucleus. Representatives of all the civic organizations, women's clubs, churches, business clubs, etc., will be invited to participate in the organization of the commission and in the preparation of a program of activities to counteract what follows in the wake of the elimination of the district. While the movement against the district originated with the Rotary Club, that organization was by no means alone in carrying out its program. The Lions Club, Ad Club, women's clubs, the churches, practically every organization and influence having the welfare of the city at heart, accepted with alacrity the Rotary Club's invitation to join in the work. The movement for the elimination of the district began with the Rotary Club early in June, shortly after Shreveport had made and lost its bid for one of the national army training cantonments. Several of the most enthusiastic workers in this project decided that if the elimination of vice districts in the vicinity of the training camps as put into effect by the United States was good for the soldiers it was good for the civilian population, the younger boys and the girls of the community. The committee took the matter up with the legislature, where it met but cool reception until the Caddo delegation got behind the effort and did what it could to have enacted a measure abolishing restricted districts throughout the state and in Shreveport in particular. But the proposed law died and the committee then began the campaign in Shreveport. The city council declined to take the initiative in abolishing the district and a referendum election was asked by the Rotary Club, which issued an invitation to all other organizations of the city to join it in the housecleaning. The response was general throughout the city and many resolutions endorsing the movement were adopted by various bodies in other towns in the vicinity. The ordinance is already in effect, but the women of the district will be given ample time to get out.

Out-of-Town Apparatus Called to Business Section.

New Rochelle, N. Y.—Damage estimated at more than $250,000 was caused by a fire which started in the cellar and destroyed several big office buildings and a number of private residences. The fire started about 2.30 o'clock in the morning. Fanned by the high wind the flames spread rapidly through the building, the first floor of which was occupied by a number of small stores and the upper floors by a furniture storage concern. Within half an hour the bank next to it was burning, and before long the sparks had been carried to the Central Hotel across the street, where a dozen guests had narrow escapes when the building caught fire. Fire chief James Ross turned in a general alarm, summoning apparatus from all the New Rochelle stations, which was quickly followed by an out-of-town call. This brought apparatus from Larchmont, Mount Vernon and Pelham. By the time the out-of-town firemen arrived the blaze had spread through several small stores and office buildings over to Main street, a block away, and was endangering the city hall, with its historic records of the Huguenot city. Only the walls of the bank remain standing. The Downey building, where the fire started, has been totally destroyed and a number of other buildings wrecked. Frame houses more than a quarter of a mile away were set ablaze by sparks, and as much apparatus as could be spared from the business section was rushed to the scene. Firemen were able to save only two out of the seven dwelling places that had caught fire from the sparks. It was almost 7 o'clock before chief Ross reported that the fire was under control. Several firemen had narrow escapes in fighting the blaze.

MOTOR VEHICLES

Canadian City's New Equipment Does Well.

Sydney, N. S.—At a test of the new American-La France motor pumper at Ingraham's Wharf, with a thirteen-foot lift the pumps forced three hundred and fifty gallons of water through a single line of hose and threw a stream of water to a distance of between seventy-five and one hundred yards. With a nozzle turned upward the stream rose to a height of fully one hundred feet. The motor truck has an engine of 105 horsepower, six cylinder. The wheel base is 156¾ inches and the tender is equipped with Dayton airless tires. The motor truck carries 1,200 feet of hose and two three-gallon hand extinguishers. It has two ten-inch headlights and one ten-inch searchlight. The pump's capacity is 350 gallons per minute, and the truck carries a supply of fifteen gallons of gasoline and will travel at the rate of fifty-two miles per hour. An important feature is the partition which runs

along the center of body from back to front. This enables the hose to be rolled with both ends out so that either can be used accordingly, as the engine comes first to the fire or the hydrant. A second test was later carried out with the engine pumping from a hydrant, in which the engine did as well as in the first. The fire department expects the arrival of a ladder truck within a month or so. This will enable the department to dispense entirely with horses.

New Fire Truck Accepted.

Provo, Utah.—At a meeting of the city commission the triple combination fire truck, purchased from the American-La France Fire Engine Company, at a cost of $8,500, was accepted. Fire chief Jos. W. Loveless reported that it had been tested and found very satisfactory.

Test of New Fire Auto Meets Approval.

Oswego, N. Y.—The official tests of the new motor-driven fire apparatus purchased by the city from the American-La France Engine Company of Elmira were in charge of chief engineer Joseph Hennessey and engineer William O'Connell, for the city, and George Morley and Messrs. Bruce and Teeter for the company, and hydraulic engineers R. D. Woods and S. T. Lewis, of Syracuse, representing the State Board of Underwriters. President Scheutzow and commissioner Kehoe, of the department of fire and police, and former chief Robert Blackburn were among the spectators. Chief Hennessey, engineer O'Connell and the representatives from the State Board of Underwriters, after watching the work for half an hour, said that there was no doubt in their minds but that the machines would meet all the requirements of the specifications. When the gauge was placed on the hydrant it showed a pressure of only fifteen pounds, throwing an indifferent stream of less than thirty feet. The engine was then attached and there was developed a pressure of 150 pounds, throwing a splendid stream. The engine will solve the lack of pressure in the Oak Hill district, so long complained of by residents there.

GOVERNMENT AND FINANCE

Big Majority for City Manager Charter.

Norfolk, Va.—Exceeding even the most liberal estimates of its advocates, Norfolk's new charter swept the city at the recent special election, its opponents being snowed under by a majority of 2,181. The leaders of the opposition, without a single exception, lost their own wards and precincts, only the smallest of the five wards in the city giving a majority against the charter. The charter received 3,403 votes, and the opposition 1,222. There were 61 void ballots. The success of the charter is attributed to the carefully planned and perfectly executed campaign of the Citizens' Union. All parties and factions were represented in the ranks of the union, and every legitimate method was employed to educate the voters as to the form of government proposed, and to get the vote to the polls. The efforts of the opposition to make an issue of the negro question fell flat. The eleventh hour announcement of the opposition that negroes and whites attended the same schools in Dayton, Ohio, which has a commission-manager form of government similar to that provided by the Norfolk charter, was combatted by the Citizens' Union by publication of the announcement that Ohio schools operate under State law, and have no connection with the city charter in so far as the condition bemoaned by the antis is concerned. The campaign was marked by strong organization on both sides and carried out in numerous meetings and street corner speeches. "Reason-why" advertising was used in the newspapers by both sides. The new charter will not become a law until passed by the General Assembly at its next session. After being ratified by the Legislature, it will not become operative until September 1, 1918, but the five members of the council will be elected the second Tuesday in June, 1918, this giving ample time for the selection of a city manager. The question has been raised as to the right of the Legislature to amend any provision of the charter. The concensus of opinion appears to be, however, that no change can be made in the charter except by vote of the people. The possibility of active opposition to the charter in the Legislature appears to be very remote. On June 19, by a great majority, the people of Norfolk went on record as favoring a change in the city government, and elected a commission of nine of the prominent and able men to frame a charter. This commission was composed of Tazewell Taylor, chairman; John E. Burke, Hugh L. Butler, W. Taylor Ham, C. H. Hix, John S. Jenkins, R. W. Peatross, Albert L. Roper and H. H. Rumble. The charter adopted provides for a council of five, one member of which is to act as president and as mayor for all ceremonial purposes. This council is to elect a city manager, whose salary is to be fixed by the council. The manager may be selected from outside the city of Norfolk, and is to hold office at the pleasure of the council, but cannot be removed for one year after taking office. The initiative, referendum and recall are incorporated in the charter and the city departments are placed under civil service. The city manager is not subject to recall, but is answerable to the council, and any member, or the entire council, may be recalled. The Democratic primary is eliminated by the charter in so far as the members of the council are concerned, but in no other instance. Candidates of the council are to be nominated by petition, signed by not less than 250 qualified voters. The name of no candidate for the council nominated in a primary or in a party caucus can be placed on the official ballot.

Increased Pay for City Workers.

Columbus, O.—The city council has passed an ordinance raising salaries of laborers and teamsters in the city employ from $2.50 to $2.75 per day. About 340 laborers and 125 teamsters will benefit by the increase. Abnormal living conditions caused the raise.

Stop Banking of City Cash in Private Accounts.

Atlantic City, N. J.—Employees of the city who have anything to do with the collecting or receiving of city moneys and who have been in the habit of depositing such funds to their own personal accounts because the sums were small and holding them until a sizable amount was on hand and then turning it over to the city, will not be able to do that in the future. They will have to make their deposits as soon as the moneys have been received. Nor will they be permitted to withdraw any of the city funds except by check or draft, which shall be countersigned by the city treasurer. A resolution covering these matters was offered by finance director Beyer to the city commission. According to the resolution: "Sums due the city government must not be deposited to the personal account of any officer or employee collecting such money, but be deposited in the name of Atlantic City, accompanied by words designating the official capacity or employment of such depositor, and that no such funds, or any part thereof, shall be withdrawn from the depository except by check or draft signed by such official or employee and countersigned or approved by the city treasurer. Further, all accounts now not so deposited shall be so deposited within ten days from the date of this resolution, and that a copy of this resolution shall be furnished each bank and trust company in Atlantic City. This, however, shall not apply to the sinking fund commission of Atlantic City."

MISCELLANEOUS

Air Highways to Cover the County.

New York, N. Y.—Plans for forming four transcontinental arteries for air traffic have been approved by the executive committee of the Aero Club of America after a thorough survey of the situation. The club's committee on landing places, of which rear-admiral Robert E. Peary is chairman, has been instructed to make all possible speed in charting the routes and selecting places. The cities named on the routes will be asked to plan and provide proper landing stations. Under the club's plan the

airways would be named the "Woodrow Wilson," "The Wright Brothers," "The Langley" and the "Chanute and Bell." The first would be charted from New York to San Francisco, touching Cleveland, Toledo, Chicago, and other important cities. The second would start from Washington, running through Virginia, North Carolina, the state in which the Wright brothers made their historic first flight, Georgia, Alabama, Mississippi, Louisiana, Texas, with a station at San Antonio, where an airplane was used for the first time in history under conditions approximating warfare, then through New Mexico and Arizona and ending at San Diego, Cal. The Langley airway, although definite plans have not yet been made, would run from Washington to Los Angeles. The Chanute and Bell airway, named in honor of Octave Chanute and Alexander Graham Bell, would run from Boston to Seattle, touching Albany, Syracuse, Rochester, Buffalo, Erie, Detroit, Grand Rapids, Michigan, Minneapolis, Bismarck, N. D., Great Falls, Mont., and other cities. North and south airways, under the club's plan, would be charted from Bangor, Me., to Key West, Fla.; Puget sound to San Diego, Cal.; while an airway to be called the "Gulf" would extend from Key West to the mouth of the Rio Grande, touching every important city on the Gulf of Mexico. These airways in time would be crossed by hundreds of smaller charted routes, so that the country, as air navigation develops, would become a vast network of routes, laid out with much precision and care as the thousands of charted sea routes. "The early putting of this plan into effect," the club's announcement said, "would give practice in flying to thousands of men upon whom the army and navy could draw as fast as they need them. As the work of flying across the country and dropping mail bags is identical with the work of bomb dropping aviators they would get practical training and the aerial mail service would become a practical training school for military aviators."

City Plan Provides Air Highway Stations.

Syracuse, N. Y.—Syracuse will be one of the landing stations on the "Chanute and Bell" aerial highway from coast to coast, the northern one of four selected routes announced by the Aero Club of America. The city is prepared, to the extent that plans are ready for immediate execution, to provide facilities for airplane traffic. Clarence E. Howard, consulting architect for the City Planning Commission, many weeks before, made public comprehensive, finished plans for an airdrome and four landing places, with all the equipment necessary for the accommodation of air travel. Mr. Howard has designed four public landing stages for airplanes, a station for hydroplanes and a great airdrome for repairs, storage, manufacture and training, as follows: East station—Lock square; West station—Burnet park; North station—east shore of Lake Onondaga; South station—Midland avenue; hydroplane station—Lake Onondaga, near airdrome; airdrome—between fair grounds and lake. The report says: "Building and repairing will be carried on at a great airdrome to be established close to the fair grounds, on the filled land between that reservation and the lake. Here is already available an area 1,000 feet wide by 2,500 feet long, flat as a ball room floor and provided with all needed means of transportation. In addition there will soon be a fill which will add nearly 1,000 acres. The hydroplane station will be on the airdrome shore of the lake. Plans are already under way for a system of shops for repairs and manufacture of new machines, or hangars to provide shelter for a fleet or for individual machines. It is also proposed to create on this area a flying school to train young men of Syracuse who wish to become flyers. The airdrome area is, of course, far larger than will be necessary at any of the other landing places. The Lock square station, the eastern terminus, will start, probably, with a width of about 400 feet and a length of 800. There is provision for a considerable extension in length if that is found necessary. It is likely the other landing stages will conform to the original plans for the Lock square station. All of the land proposed for conversion to air traffic purposes is either in possession of the public authorities or held under agreement with them. Whatever additional land is necessary is obtainable at a low price. Thus, literally, the groundwork is done. It is impossible as yet to know all of the details which time will determine as necessary equipment of these landing stages. Some progress has been made even along this line, however. Take the matter of designating the landing stages by night and by day, for instance.

By day the stages will be marked by wide margins of concrete, painted white, or white and black. Roofs of certain buildings can be utilized for aerial sign posts along the general air routes. Where these are unavailable, the government, either federal or state, will erect distinguishing marks at proper intervals. This will be necessary because with the development of air traffic will come a drifting away of the flying custom of following water routes both because of the level ground to be found along streams and because the ribbon of water offers a sure guide to the airmen.

By night it is proposed to indicate the landing stages in a novel way. There must, of course, be a sufficiency of light not only to designate the landing stage at a distance, but to provide illumination for the process of landing itself. It is suggested, therefore, that wells be sunk at each corner of the stage. In these wells powerful searchlights will be placed with their beams aimed straight at the heavens. These shafts of light, extending hundreds of feet into the sky, will prove a never failing guide to the wandering airman, and also will illuminate the landing stage itself. Being beneath the level of the ground there will be no diffusion of the glare to confuse the flyer.

It will also be necessary to provide colored signal lights of high power to indicate the number and name of the state, and to inform the flyer when and how he may drop to earth. It also probably will be necessary to have some sort of an aerial patrol either stationary or in moving planes, for purposes of policing the air and for guidance. Both systems may be used, in fact. One may even expect to see the aerial pilot planes skimming about, awaiting the arrival of the liners of the air. In bad weather lights may be raised to enormous heights by means of kites or balloons so that airmen above the clouds may find their course despite the mists beneath them.

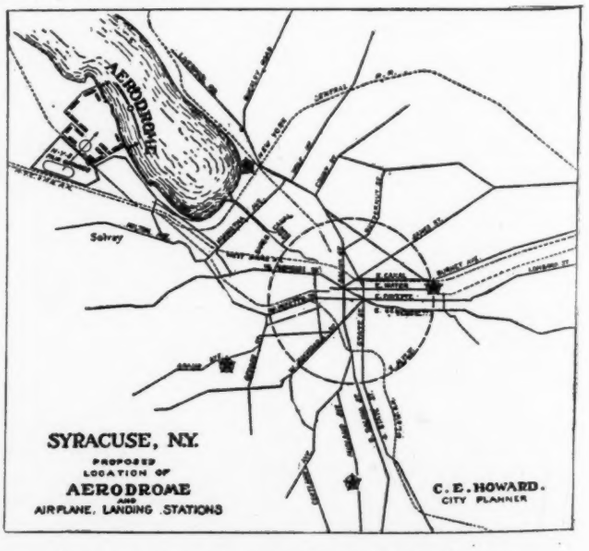
In the accompanying illustration the stars indicate landing places, while the circle circumscribes the "barred zone."

City Sells Potatoes to Charitable Organizations.

Columbus, O.—The board of purchase is selling approximately 800 bushels of potatoes, raised on the workhouse farm, to a group of charitable organizations of the city. A price of $1.25 a bushel has been fixed. Representatives of a number of these organizations attended a board meeting and offered to take the potatoes at this price. According to the plan the potatoes are to be distributed among the headquarters of the various organizations and from there sold and delivered to worthy families.

Vote For Grade Crossing Subway.

Ashtabula, O.—The proposition to issue $140,000 bonds for the construction of Center street subway was approved by vote of 2,285 to 836, giving a safe margin over the required two-thirds. In only one of the seventeen city precincts was the vote against the proposal. The question has been agitated for a number of years, particularly after a disastrous accident about five years ago. The grade crossing will be eliminated at the dangerous point and a subway constructed.



AEROPLANES IN CITY PLAN OF SYRACUSE.

NEWS OF THE SOCIETIES

Calendar of Meetings.

Nov. 25-Dec. 1.—ATLANTIC DEEPER WATERWAYS ASSOCIATION. Annual convention, Miami, Fla. Secretary, W. H. Schoff, Crozer Building, Philadelphia, Pa.

Dec. 6, 7.—ILLINOIS MUNICIPAL LEAGUE. Annual convention, University of Illinois, Champaign and Urbana, Ill. Secretary, John A. Fairlie.

Dec. 4-6.—AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual meeting, Richmond, Va. Acting secretary, H. M. Berry, Chapel Hill, N. C.

Dec. 26-29.—AMERICAN POLITICAL SCIENCE ASSOCIATION. Annual meeting, Philadelphia, Pa. Secretary, Clinton J. Swartz, Trenton, N. J.

Dec. 27-29.—AMERICAN SOCIOLOGICAL SOCIETY. Annual meeting, Philadelphia, Pa. Secretary, Scott E. W. Bedford University of Chicago, Chicago, Ill.

Jan. 3, 4.—NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual convention, Trenton, N. J. Secretary, Clinton A. Swartz, Trenton, N. J

Jan. 15-17.—VIRGINIA GOOD ROADS ASSOCIATION. Seventh annual convention, Richmond, Va. Secretary, C. B. Scott, Richmond, Va.

Feb. 6-13.—FIRST CHICAGO CEMENT MACHINERY AND BUILDING SHOW. Supersedes annual Chicago Cement Show. Held at the Coliseum, under direction of the National Exhibition Co.

March 17-24.—PAN-AMERICAN CONGRESS ON CHILD WELFARE, Montevideo, Uruguay. Secretary, Edward N. Clopper, 105 East 22d Street, New York, N. Y.

American Association of State Highway Officials

The annual meeting of this association will be held at Richmond, Va., December 4, 5 and 6. The program has been arranged as follows:

Tuesday, December 4.

9:00-10:00 a. m. Registration of delegates.

10:00 a. m. President's annual address—G. P. Coleman, of Virginia.—Present Conditions Affecting Road Construction and Measures Taken to Meet Them. (a) In the East—W. D. Uhler, of Pennsylvania. (b) In the Central West—S. E. Bradt, of Illinois. (c) In the South—W. S. Keller, of Alabama. (d) In the far West—General discussion.

2:30 p. m. Car Shortage, Present Conditions, and the Remedy—Charles M. Upham, of Delaware. Discussion—F. F. Rogers, of Michigan, and Clinton Cowan, of Ohio. General discussion. Military Roads, Why and Where—Wm. D. Sohier, of Massachusetts. Discussion—W. F. Cocke, of Florida, Geo. A. Duren, of Texas, and Rodman Wiley, of Kentucky. General discussion. Appointment of committees.

8:00 p. m. Theatre party, arranged by entertainment committee.

Wednesday, December 5.

W. D. Uhler, of Pennsylvania, presiding. 9.30 a. m. One Year's Experience with the Federal Aid Road Law—Logan Waller Page, Director U. S. Office of Public Roads.

The United States Office of Public Roads has arranged to have a representative present who will discuss briefly the requirements of the Secretary of Agriculture under the following heads. After taking up each topic, questions and general discussion will be entertained. (a) Project Statements. (b) Mail Routes. (c) Permissible Types of Constructions. (d) Surveys and Plans. (e) Estimates and Specifications. (f) Project Agreements. (g) Lettings and Contracts. (h) Construction and Inspection. (i) Convict Labor and Force Account Work. (j) Monthly and Final Estimates. (k) Tests of Materials. (l) Acceptance. (m) Federal Payments. (n) Balances and Deficits. (o) Maintenance.

2:00 p. m. Continuation of discussion.

3:00 p. m. Should an Effort Be Made to Amend the Federal Aid Road Law? If So, in What Respects?—T. H. MacDonald, of Iowa. Discussion—H. G. Shirley, of Maryland; C. M. Babcock, of Minnesota; W. S. Fallis of North Carolina; T. J. Ehrhart, of Colorado. General discussion.

7:00 p. m. Annual informal dinner of association, Hotel Jefferson.

Thursday, December 6.

Edwin Duffey, of New York, presiding. 9:30 a. m. Recent Developments in the Design and Construction of Road Surfaces—H. Eltinge Breed, of New York. General discussion. Another Year's Experience in Maintaining a State System of Macadam Roads—H. G. Shirley, of Maryland. General discussion. The Maintenance of Brick and Cement Concrete Roads—F. F. Rogers, of Michigan. General discussion. The Maintenance of Gravel Roads—Paul D. Sargent, of Maine. General discussion.

2:00 p. m. Maintenance of Earth Roads—John H. Mullen, of Minnesota. General discussion. The Maintenance of Steel Bridges, Paints—W. S. Gearheart, of Kansas. General discussion; reports of standing committees; report of secretary; report of treasurer; report of resolution committee; election of officers; adjournment.

National Paving Brick Manufacturers' Association.

At the fourteenth annual meeting of the association, held at the Hollenden Hotel, Cleveland, November 19 and 20, officers were elected as follows: C. C. Blair, president; J. L. Murphy, vice-president; Will P. Blair, secretary, and C. C. Barr, treasurer. Mr. Murphy succeeded J. W. Robb, who declined re-election. H. H. Macdonald, who has been assistant secretary for several years, declined re-election and resigned to become secretary of the Gypsum Industries Association.

C. C. Blair, in his report as president, discussed the present condition of the association and of road-building contractors. He criticised the Council of National Defense for some of the orders bearing on the shipping situation and emphasized the fact that all industries must be ready to meet present and future conditions. He urged the immediate building of first class roads in order to aid the railroads on short hauls and characterized this work "the most necessary undertaking that can be engaged in at the present time, next to actual fighting and providing for the army." In the field of construction he urged the importance of standardization. To insure first class construction on all work he suggested that it might be necessary for the association to invade the contracting field, pointing out that at the present time comparatively few contractors have the capital and equipment to handle a large job.

In the secretary's report, Will P. Blair pointed out how, by reason of war conditions, the paving brick industry has been affected. These conditions he listed as high cost of production, lack of competent and dependable contractors, the great shortage of transportation facilities, low estimates where the law forbids the awarding of contracts on bids in excess of certain limitations, and the lack of a national advertising campaign. He urged the reduction in manufacturing cost by the use of special equipment and advocated the adoption by manufacturers of a cost accounting system. In the contracting field he urged cooperation and the mobilization of a force of reliable and dependable contractors to handle construction.

The chief engineer of the association, Maurice B. Greenough, emphasized the value of proper construction. He called attention to the fact that at the present time the association was forced to rely for proper construction upon the good will of the contractor and that the control of the brick manufacturer now ends upon delivery at the roadside. He pointed out that all the energy and money spent to improve and to maintain a high quality in the brick may be counterbalanced by carelessness of construction on the part of the contractor.

He suggested the organization of a joint contracting company on a scale broad enough to prevent the occurrence of pavement lettings without bids on brick pavements and large enough to prevent work from falling into the hands of unworthy contractors who cannot or will not build brick pavements properly. As an alternative he suggested the establishment of a corps of trained engineers, each operating over an assigned territory, whose duties should include inspecting all brick pavement construction within their territory and furthering the use of the material. He stated that these inspectors should be insured of the power of inspecting and directing the use of material by means

of clauses in all contracts for the sale of paving brick.

The assistant secretary, H. H. Macdonald, pointed out that because of the shortage of freight cars and the lack of terminal facilities railroads were unable to handle properly the freight movement confronting them. The paving of main roads between cities he advocated as a war measure. He further urged the association to embark upon a national advertising campaign to educate the people in the advantages of paving brick.

The association appointed a committee to represent the industry in matters affecting it which might arise out of any governmental relationship.

In the discussion concerning street and road improvements many instances were cited where truck movements over highways enabled industrial establishments to operate independently of railroad service. The unanimous conclusion was that highway work and road improvement was a war necessity and must be continued with all possible energy.

Michigan Anti-Tuberculosis Association.

Belief that the present war will bring about the solution of the housing problem, which in its turn has been responsible for a high tuberculosis death rate, just as previous wars have meant the perfection of hospital systems, was expressed by William B. Stratton at the tenth annual convention of the Michigan anti-tuberculosis association held in Battle Creek recently. Mr. Stratton spoke on "The Building of Workingmen's Homes With Reference to Tuberculosis and Public Health" as follows:

Announcement that the council of defense and labor are planning to place before congress a program calling for $100,000,000 for the purpose of housing its munition workers is proof that this country expects to follow the work of Great Britain.

From his majesty's office of works, plans have gone out, resulting in the erection of 1,600 houses for munition workers near Woolwich, which is only one of the big community plans of the English.

This government handling of the housing situation will mean the bridging of the impossible chasm which has hitherto existed. In America we have seen so-called "company" houses a failure and surely the cost of materials and land is too prohibitive for private enterprise to undertake proper housing of the workingman.

Since industrial housing schemes have had to come to a stop and since it would be of no use to have factories if we can't have healthy men, the government ought and is going to take over the problem as the English government has.

Certainly this is one of the biggest things which has come out of the war. At present, 40 per cent of the deaths due to tuberculosis alone can be directly blamed upon bad housing conditions.

Buildings which will be erected, if the English plan is followed, will be made of cement and clay products. Rentals will be calculated with reference to condition and locality, not with regard to the cost of building the houses, stores and halls which go to make up a good-sized village.

Locally, the state building code is expected to answer some of the ordinary housing difficulties, but this measure is a preventive one following the regular march of public health improvement. In Flint the principle of the code has been applied to erection of 300 acres of houses for automobile workers. Mr. Stratton says

(*Continued on page 552.*)

PROBLEMS CITIES ARE STUDYING
WITH EXPERTS

WATER DISTRIBUTION EXTENSIONS are to be made by York, Ont. The engineer for the work is Frank Barber.

Tulsa, Okla., is to make extensions to its WATER DISTRIBUTION SYSTEM. The engineer for the work is E. M. Stevens.

The Jonesboro-Nettleton Road Improvement District, Arkansas, is to construct a number of PAVEMENTS. Plans and specifications were prepared by the engineers, Klyce & Kackley.

The WATER SUPPLY SYSTEM, of Keithsburg, Ill., is to be rebuilt. Plans and specifications for the improvement were prepared by C. F. Sturtevant.

Maywood, Ill., is to have a SEWAGE PUMPING STATION and SLUDGE PLANT. Plans are being prepared for the Sanitary District of Chicago by the engineer, J. McGillen.

WATERWORKS IMPROVEMENTS are proposed for Madill, Okla., to cost about $65,000. Plans and specifications for the work are by the engineering firm of Burns & McDonnell.

SEWERS are to be constructed by Union City, Ind. The engineer for the work is C. E. Hollinger.

A SEWERAGE SYSTEM and disposal plant are to be built by Lake Andes, S. D. The engineer is A. A. Loft.

STREET IMPROVEMENTS are to be made by Quincy, Fla. Plans and specifications for the work were made by J. B. McCrary Company.

PAVING IMPROVEMENTS are to be made by Eldorado, Ill. Plans and specifications for the work have been made by Frank L. Wilcox.

Filmore, Cal., has voted $60,000 for the construction of a WATERWORKS SYSTEM. Plans and specifications are in process of preparation by the engineering firm of Olmsted & Gillelen.

Quanah, Tex., is contemplating the development of an adequate and permanent WATER SUPPLY. The city has retained Henry Exall Elrod as consulting engineer to investigate and report.

PERSONALS

Fairtrace, George D., has been appointed city engineer of Dallas, Tex., succeeding Hal Moseley.

Mayors have been elected in Pennsylvania as follows: Pittsburgh, E. V. Babcock; Butler, Joseph A. Heineman; Scranton, A. T. Connell.

Rosson, W. L., has been elected mayor of Frankfort, Ky.

Smith, George W., has been elected mayor of Louisville, Ky.

For the fourth successive time, Clifford B. Wilson has been elected mayor of Bridgeport, Conn

The following mayors have been elected in Utah: Brigham, I. B. Kelly; Tooele, F. T. Burmester; Provo, LeRoy Dixon; Springville, George R. Maycook; Sandy, W. W. Wilson; Payson, Henry Erlandson; Manti, W. W. Brown; Midvale, John A. Aylert; Fillmore, C. Clyde Callister; Lehi, Sydney Gilchrist; Logan, Roy Bullen; Garland, Loren W. Preston; Corinne, W. F. House; Eureka, Major Church; Park City, John Fitzgerald; Ephraim, John N. Dorius; Price, George A. Wootten; Richfield, N. C. Poulson; Helper, F. R. Slopansky; Mt. Pleasant, W. D. Canland; Murray, N. W. Erickson; American Fork, J. T. Gardner; Kayville, John W. Thornley; Hyde Park, J. H. Hurren; Charleston, Charles Shumway; Newton, Lorenzo Larsen; Paradise, Gideon Olsen, Jr.; Richmond, A. S. Schow; Lewiston, Lorenzo Lewis; Hyrum, Henry Jensen; Wellsville, G. J. Saslam; Providence, G. M. Pickett; Millville, Charles Anderson; Linden, Thomas Muir; Heber City, John A. Fortie; Farmington, J. H. Wood; Mammoth, John P. Anderson; Bountiful, Quayle Cannon; Spanish Fork, Irwin P. Snell; Nephi, James Garrett, Jr.; Fairview, H. L. Olson.

The following mayors have been elected in Ohio: Chardon, R. H. Patchin; Waverly, J. Donovan; Clyde, Charles Scholey; St. Clairsville, Henry M. Davis; Wellington, G. E. Wells; Mogadore, H. W. Fenton; Bryan, R. H. Lamphre; Bowling Green, S. W. Bowman; Shelby, C. E. Morris; Willoughby, W. J. Carmichael; Newton Falls, R. Scott; Greenspring, J. D. O'Connel; Wadsworth, Dr. F. W. Boyer; Kent, M. L. Davey; Niles, C. Crow; Oberlin, J. D. Yocum; Athens, E. C. Woodworth; Hamilton, C. J. Smith; Wapakoneta, F. A. Klipfel; Cincinnati, J. Galvin; Millersburg, S. B. Fair; Oxford, J. S. Hughes; Portsmouth, H. H. Caps; Paulding, B. H. Laughlin; Tiffin, G. M. Eidt; Orrville, E. P. Williams; Huron, F. McQuillan; Delphos, G. N. Leasure; Delaware, A. J. White; Nelsonville, L. McDowell; Wauseon, E. F. Hanson; Cadiz, R. M. Atwood; East Liverpool, J. S. Wilson; Salem, F. W. Webster; Youngstown, A. Craver; Bellefontaine, U. L. Kennedy; Painesville, E. G. Huntington; Toledo, C. Schrieber; Lorain, A. J. Horn; Bucyrus, William Ott; Batavia,

(*Continued on page 552*)

NEW APPLIANCES

Describing New Machinery, Apparatus, Materials and Methods and Recent Interesting Installations.

GASOLINE MEASURING PUMPS.

For Fire Stations, City and Contractors' Garages.

With the increased use of motor apparatus and equipment and the rising efficiency in such use more and more accurate records of operation are being kept. Such records of fuel and oil have been recognized as the basis of economical operation by an ever-growing number of fire departments, public works officials, police departments having motor cycle squads and patrols, contractors using auto equipment and gasoline-driven machinery, county highway officials, municipal garage superintendents, etc.

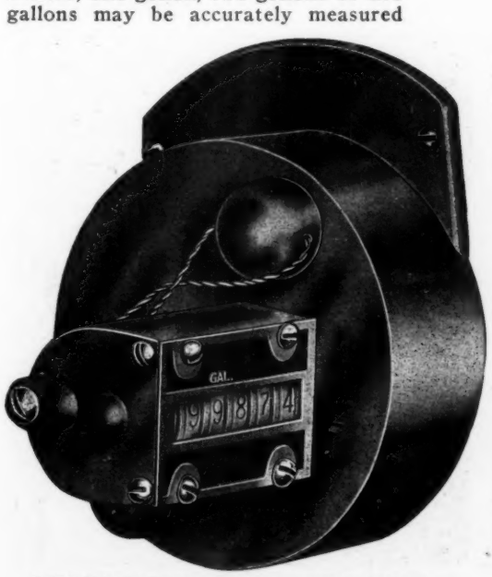
Probably the best method of obtaining such records is with the use of a measuring pump. The "Wayne Monarch" pump has a number of features which make its use in such services as those mentioned of decided advantage.

It is a continuous forward motion pump, no backward strokes being required. Fifteen revolutions discharge five gallons and return the plunger. A lever device enables the operator to return the plunger to the bottom by simply pushing up on the trip.

A twenty-gallon irreversible register shows instantly how many gallons have been discharged. This dial is aluminum faced, numbered in red and black, and is 6 inches in diameter. It is illuminated at night by the dome light. A 1,000,000 gallon gear-driven meter accurately records each gallon or fractional part of liquid taken from the pump. There is a quantity stop, so arranged that, by simply turning a lever, one gallon, two gallons or five gallons may be accurately measured through the pump. The computing scale is graduated and aluminum faced and it enables the operator to tell accurately and instantly just what fractional part of a gallon has been obtained from the pump.

A postive centrifugal filter is conveniently located in the pump head. Water, dirt, dust and all impurities are positively separated from the gasoline before it is discharged.

The Wayne pump is made in a number of sizes and types for handling gasoline, kerosene, lubricating and other oils. Portable outfits are also included in the line. Tank systems and underground storage systems are also made for this service.



1,000,000-GALLON WAYNE PUMP METER.

WAYNE PUMP.

The accompanying illustrations show the "Wayne Monarch" pump and "close-up" views of the meter and of the quantity stop described. The line of pumps is made by the Wayne Oil Tank and Pump Co., Fort Wayne, Ind.

CHEMICAL ENGINE FOR ARMY SERVICE.

American-La France Equipment on Ford Chassis.

The U. S. Army has found an important use for a light, speedy type of fire apparatus in the Aviation Section of the Signal Corps and has contracted with the American-La France Fire Engine Co., Inc., Elmira, N. Y., for twenty-two type 32 American-La France chemical engines on Ford chassis.

The factors said to have been considered in the choice of this type of chassis were its simplicity, durability and year around reliability. Considerable study has been given by the American-La France experts to the designing of fire equipment adapted to the Ford chassis. The general tendency is toward overloading, consequently particular attention was paid by the American-La France engineers to the question of proper weight distribution, thereby minimizing the danger of overloading in service.

The apparatus for the Signal Corps was of standard design, with two twenty-five gallon chemical tanks equipped with a by-pass system. This arrangement permits the recharging of one tank while the other is discharging and insures the maintenance of a powerful chemical stream for as long as is necessary.

This type of apparatus has also filled a long felt want in small towns and rural communities. It is particularly adapted to the class of fire service involving widely separated farms and dwellings where its speed is of immense importance. The value of this feature, together with the simplicity of operation, has also been recognized by many industrial plants, and American-La France fire equipment on Ford chassis has been adopted to increase the efficiency of their fire fighting organizations.

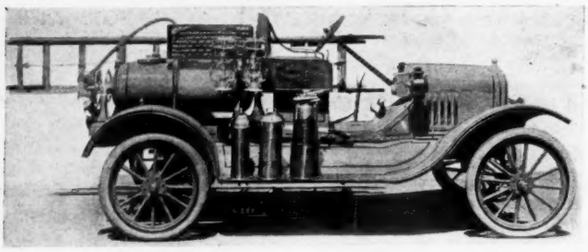
The specifications of the apparatus follow in brief: The chassis is a Ford Motor Company's standard. The tanks are two of 25-gallon capacity each, made of seamless drawn steel. The hose equipment includes 150 feet of ¾-inch special four-ply chemical hose with brass shut-off nozzle and two tips. A sixteen-foot extension ladder is part of the outfit. Other equipment includes a fire hose basket, two fire

department type lanterns, one crowbar, one axe and one No. 5 Babcock extinguisher.

The apparatus is shown in the accompanying illustration.

INDUSTRIAL NEWS

Cast Iron Pipe.—Prices remain the same after the recent rise of $5 at Birmingham and Chicago. The New York prices also remain unchanged. Municipal business is still being withheld to a large extent because of prices: Quotations: Chicago, 4-inch, class B and heavier, $58.50; 6-inch, $55.50. New York, 4-inch, class B and heavier, $59.50; 6-inch, $56.50. Birmingham, 4-inch, class B and heavier, $53; 6-inch, $50; class A, $1 extra, all sizes.



AMERICAN-LA FRANCE CHEMICAL ENGINE FOR ARMY SERVICE.

The General Electric Company, Schenectady, N. Y., among its latest publications includes two indexes, one indexing the supply-part bulletins and the other the descriptive bulletins and sheets. Bulletin No. 4,021 describes and illustrates the R.-F. line of adjustable speed motors.

The Lakewood-Galion Company, Galion, O., was recently incorporated by interests connected with the Lakewood Engineering Company, of Cleveland. The latter company some time ago acquired the plant of the Galion Dynamic Motor Truck Co., which it will equip for the manufacture of electric trucks and tractors, storage batteries and trolley locomotives. The capital stock of the new company will be $100,000 and its general offices will be in Cleveland in connection with those of the Lakewood Engineering Co.

The Sullivan Machinery Company, 122 South Michigan Ave., Chicago, Ill., announces that Mr. Joseph H. Brown, hitherto assistant manager of its New York office, has been appointed district sales manager at Chicago to succeed Mr. William P. J. Dinsmoor, who has resigned. Mr. Wallace T. Roberts, formerly sales manager in lower Michigan, northern Ohio and northern Indiana, has been appointed district manager at Denver. He succeeds Captain Matt R. Blish, ordnance dept., U. S. A., acting manager at Denver since last May. Mr. George W. Blackinton, manager at Denver up to last May, is captain of a National Army infantry regiment at Camp Funston, Kansas.

Cement Draintile and Concrete in Alkali Soils.—A report on the durability of cement draintile and concrete in alkali soils, containing the results of a third year's tests, conducted by representatives of the United States Bureau of Standards of the Department of Commerce, in cooperation with the Department of Agriculture, the United States Reclamation Service, and the Portland Cement Association, has been published by the Bureau of Standards as Technologic Paper No. 95. The book contains nearly 150 pages and has a large number of halftones and other illustrations. It may be obtained at 35 cents per copy from the Superintendent of Documents, Government Printing Office, Washington, D. C.

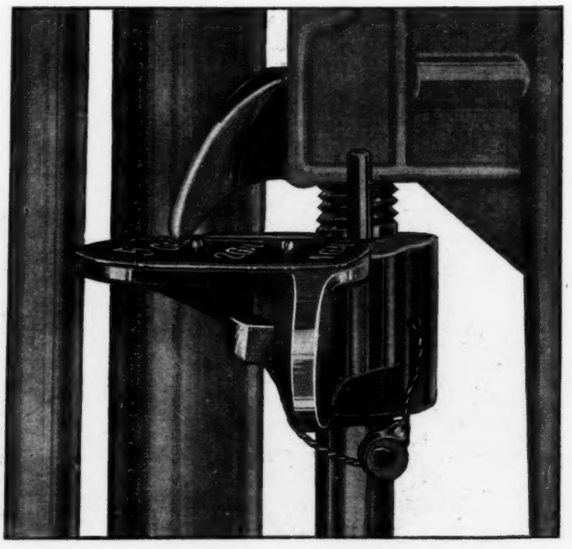
NEWS OF THE SOCIETIES

(*Continued from page 550*)

that ideal conditions of light, air and private yards are features of these structures.

There is no doubt but that the key to the tuberculosis problem lies in the housing question. It has been stated recently in an architectural publication that the shacks built at the time of the flood emergency in Galveston are still doing duty as slums.

Such is the usual experience with temporary buildings, and a terrible situation would be created in this country if, in the case of the emergencies of housing which will arise with the erection of new factories for the manufacture of munitions or other war supplies, the government did not step in and plan for substantial buildings. Even though the condition is fairly temporary, the presence of the well-planned village would mean that its houses would not be empty.



QUANTITY STOP DEVICE ON WAYNE MEASURING PUMP.

PERSONALS

(*Continued from page 550.*)

N. L. Bennett; Canton, C. E. Poorman; Warren, E. Parks; Troy, C. E. Harmon; St. Marys, H. C. Smith; Granville, C. D. Coons; Lima, B. Simpson; Alliance, C. S. Westover; Ada, Clutter; McArthur, T. Sharp; Grafton, G. E. Gardner; Bellaire, C. Culbertson; Conneaut, W. R. Smith; Cambridge, J. S. Longsworth; Circleville, J. C. Collers; Defiance, G. Kirtley; Galion, F. W. Biehl; Girard, T. G. Blackstone; Eaton, H. L. Risinger; Kenton, G. H. Lingrey; Martins Ferry, J. Ralston; Medina, Rev. S. F. Dimmock; Middleport, J. H. Williams; Pomeroy, H. S. Humaker; Ashland, R. H. Davis; Van Wert, J. Gamble; Wooster, G. A. Fisher; Washington C H., V. J. Dahl New Philadelphia, William Kuenzli; Ottawa, W. H. Handy; Chillicothe, W. S. Story; Manchester, A. H. Halderness; Seaman, J. T. Ryan; Peoples, J. M. Askers; West Union, S. B. Robuck; Winchester, William Shipley; Oak Harbor, E. Bertsch; Coshocton, F. Richardson; Fostoria, O. R. Wade; Elyria, A. Jones; Fremont, H. Day; Greenville, J. Wright; Marysville, M Hopkins; Wellston, F. H. Ely; Ironton, A. J. Hannon; Dover, W. H. Scheu; Steubenville, F. W. Feist; Sidney, H. K. Forsythe; New Lexington, J. B. Barber; Mansfield, H. G. Brunner; Akron, I. S. Myers; Newark, H. A. Atherson; Massillon, Frank L. Koontz; Marietta, A. A. Crawford; Lancaster, John A. Mayer; Cleveland, Harry L. Davis; Jackson, E. C. Laird; Wellsville, George B. Imbrie.

The following mayors were elected in Indiana:

Jasper—George P. Wagner.
Jeffersonville—Newton S. Myers.
Kendallville—U. C. Brouse.
Kokomo—Isaac Wright.
Lafayette—George R. Durgan.
Laporte—Herman W. Saltwasher.
Lawrenceburg—J. C. McCullough.
Lebanon—Paul O. Lauer.
Linton—Andrew Miller.